



## **Tregrill, Menheniot, Cornwall**

### **Archaeological assessment of proposed wind turbine**



**Historic Environment Projects**

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<b>Client</b>	<b>Mr and Mrs W D Crocker</b>
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<b>Report author(s)</b>	<b>Graeme Kirkham MA MifA</b>
<b>Checked by</b>	<b>Andy Jones PhD MifA; Adam Sharpe BA MifA</b>

Historic Environment, Cornwall Council

Kennall Building, Old County Hall, Station Road, Truro, Cornwall, TR1 3AY

tel (01872) 323603 fax (01872) 323811 E-mail [hes@cornwall.gov.uk](mailto:hes@cornwall.gov.uk)

[www.cornwall.gov.uk](http://www.cornwall.gov.uk)

## **Acknowledgements**

This study was commissioned by Mr and Mrs W D Crocker and carried out by Historic Environment Projects, Cornwall Council.

The Project Manager was Adam Sharpe.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

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## **Cover illustration**

View from public footpath 618/10/3 towards the proposed Tregrill wind turbine site (centre of image). The view also includes Menheniot church spire (left), the Tregrill solar farm and the high-tension electricity pylons which cross the landscape to the south of Tregrill.

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## **Abbreviations**

CRO	Cornwall County Record Office
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
MCO	Monument number in Cornwall HER
NGR	National Grid Reference
OD	Ordnance Datum – height above mean sea level at Newlyn
OS	Ordnance Survey
RIC	Royal Institution of Cornwall





## **1 Summary**

Historic Environment Projects, Cornwall Council, was commissioned by Mr and Mrs W D Crocker to carry out an archaeological assessment on the potential impacts of a proposed wind turbine development on land at Tregrill, Menheniot (NGR SX 27811 63753), in support of objections to the development. The proposal is for a single wind turbine with a hub height of 50m and a height to blade tip of 77m.

The proposed site for the development is in an area of fields probably enclosed during the post-medieval period but lying within a wider area characterised as medieval farmland. It lies on the flanks of a ridge to the east of the valley of the River Seaton.

The assessment comprised a desk-based assessment, viewshed analysis to 10 km from the proposed turbine site and visits to key heritage assets within the surrounding landscape.

The desk-based assessment provided no information on potential archaeological remains on the proposed development site.

Viewshed analysis and fieldwork suggested that there is potential for impacts up to and including **negative / moderate** on the settings of a variety of heritage assets within the wider area, and on historic landscape character.

A report summarising the results of the assessment and its conclusions was prepared for the client.

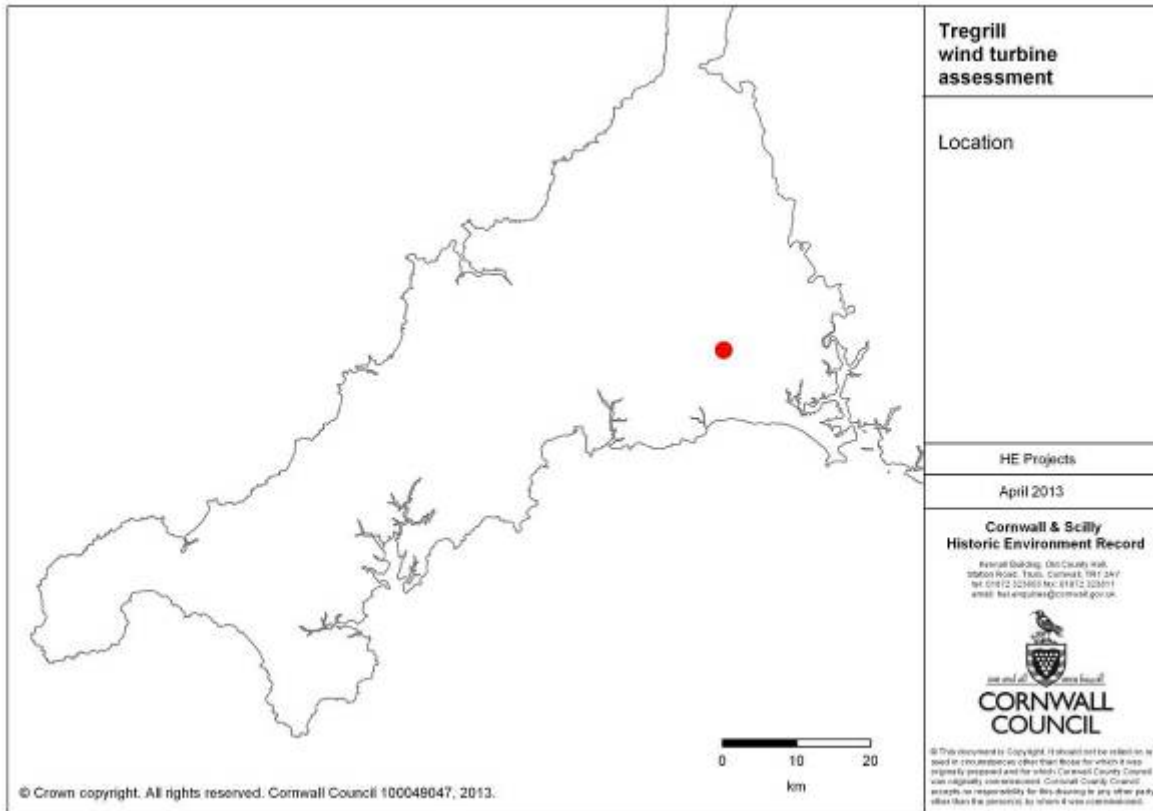


Fig 1 Location of Tregrill

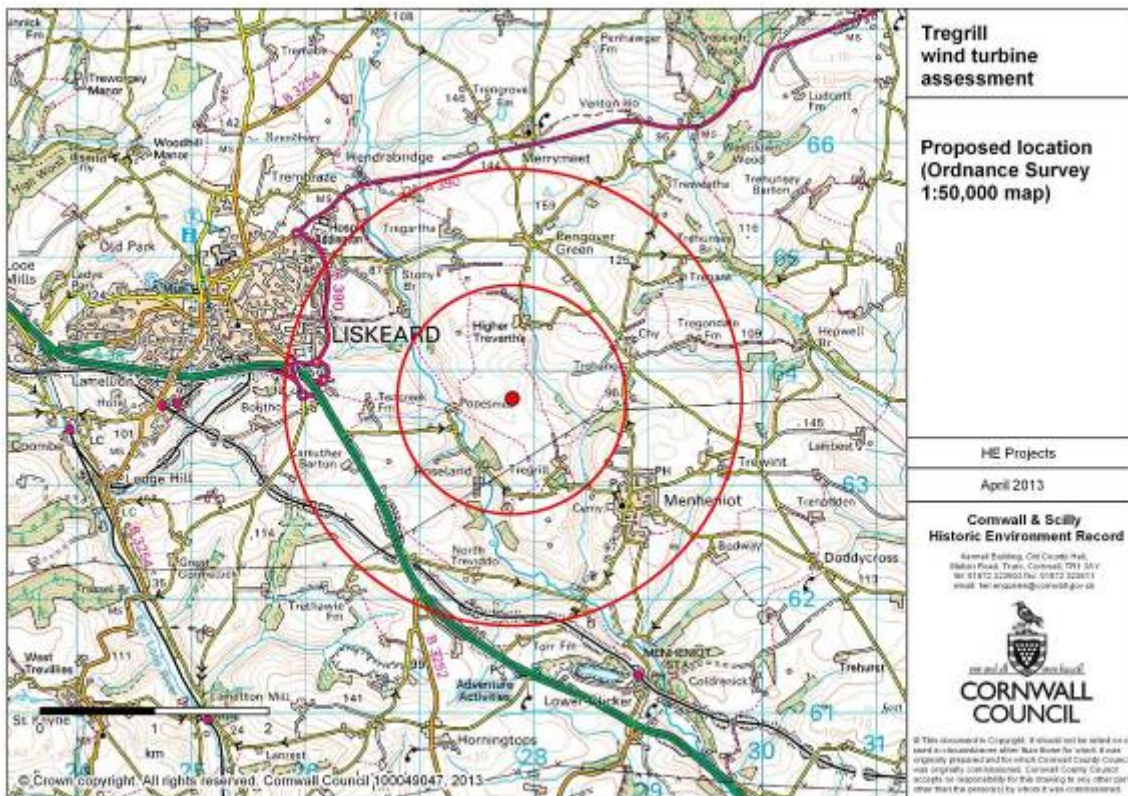


Fig 2 Location of the proposed wind turbine with 1 and 2 km radius distance shown.

## **2 Introduction**

### **2.1 Project background**

Historic Environment Projects was commissioned in March 2013 to carry out an assessment of the impact on the historic environment and heritage assets of a proposed wind turbine development at Tregrill, Menheniot. The development is the subject of a planning application (Cornwall Council PA13/02565).

### **2.2 Aims**

The assessment has the following aims:

- a) to assemble an evidence base to identify those historic assets which may be impacted by the proposed development; and
- b) to evaluate the significance of the assets affected and the significance of their settings and identify potential impacts on that significance either direct or indirect.

The site specific aims are to:

- Generate viewsheds (GIS-derived Zones of Theoretical Visibility (ZTV)) for the proposal site.
- Draw together existing historical and archaeological information about the site and its landscape setting.
- Review and analyse historic map evidence for the site.
- Identify the construction, use and 'end of life' impacts of the current proposals on designated heritage assets (as listed in the NPPF) and on undesignated historic assets as described in PPS5.
- Follow English Heritage Guidance 'The Setting of Heritage Assets' (2011) to produce assessments of the significance of setting of affected assets and the impacts of the proposals on those settings.

The principal project objective is to produce an illustrated report setting out the range of potential impacts of the proposal, the relative significances of the potentially affected sites and suggestions for suitable mitigation measures.

A further objective is to produce an entry to the OASIS online index to archaeological projects.

### **2.3 Methods**

The assessment was based on the following elements:

#### **2.3.1 Desk-based assessment**

Consultation of historical databases and archives to obtain information about the history of the site and the structures and features that are likely to survive within it. The main sources consulted are detailed in section 15. They were:

- Cornwall Historic Environment Record;
- Historic maps;
- Published histories.

#### **GIS manipulation**

A Geographical Information System (GIS) was used to generate a Zone of Theoretical Visibility (ZTV) of the proposal site, creating viewsheds and identifying known heritage assets, both designated and undesignated, which lie within the ZTV of the site.

### **2.3.2 Fieldwork**

A visit to the environs of the proposed wind turbine location and key heritage assets identified within the site's ZTV (public access allowing), with appropriate photography and recording of perceived impacts.

### **2.3.3 Post-fieldwork**

Creation of a report and appropriate graphic material (this report).

## **3 Location and setting**

The site of the proposed turbine (NGR SX 27811 63753: revised location obtained from planning application) lies in the parish of Menheniot (Figs 1, 2 and 10). It is located on the south-eastern end of a ridge lying approximately north-south (Fig 12) dividing the valleys of the River Seaton to the west and an unnamed stream running south from Trevartha which joins the Seaton approximately 1.7 km south of the proposed turbine location. The valley bottoms lie 30-50m below the proposed turbine site, which is located at about 120m OD on a south east-facing slope approximately 100m east of the spine of the ridge. The ridge itself reaches a summit at about 150m OD roughly 700m north north west of the proposed site.

The geology is characterised as undifferentiated Upper Devonian mudstone, slates and siltstone (British Geological Survey 2012). The site lies on loam soils of Denbigh 1 type over shale; loams of Trusham type over hard rock cover the higher part of the ridge (Cranfield University 2004).

## **4 Project extent**

The archaeological assessment focused on heritage assets (whether designated or not) which might be physically impacted upon by activities associated with the erection of the wind turbine, including cable trenching, siting of temporary compounds, cranes or other equipment and with any associated semi-permanent infrastructure. It also assesses and quantifies impacts on the settings of heritage assets (both designated and undesignated) which fall within the viewshed of the proposed turbine sites. This approach is in line with paragraph 129 of the 2012 National Planning Policy Framework (NPPF), sections 16(2) and 66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 Chapter 9, and English Heritage guidance relating to the setting of historic assets (2011) and on wind energy and the historic environment (2005).

For the purposes of this project the range of features regarded as relevant for the assessment was defined as:

- Non-designated heritage assets within 1 km radius.
- Grade II Listed Buildings and Conservation Areas within 5 km radius (Grade II Listed Buildings individually assessed to 2 km within the ZTV).
- World Heritage Site, Scheduled Monuments, Grade I and II\* Listed Buildings, Registered Battlefields and Registered Parks and Gardens within a 10 km radius (individual Scheduled Monuments and Grade I and II\* Listed Buildings assessed within 5 km radius ZTV).

## **5 Designations**

### **5.1 International**

Figure 18.

No international designations apply to the proposed turbine site itself. The whole of the Cornish Mining World Heritage Site area around Minions and Caradon Hill falls within the 10 km ZTV of the proposed wind turbine site, with a small pocket east of St Cleer extending into the 5 km zone.

## 5.2 National

No national designations apply to the site proposed for the development.

The 10 km radius viewshed includes:

- 34 potentially intervisible Scheduled Monuments (Fig 25);
- two Registered Parks and Gardens (Fig 20);
- a Registered Battlefield (Fig 19);
- four Grade I Listed Buildings and six Grade II\* Listed Buildings (Figs 26-7).

The 5 km radius viewshed mapping indicates potential intervisibility between the proposed wind turbine and two Conservation Areas: Liskeard and a small portion of Minions (Fig 24).

Within the 5 km radius viewshed, the wind turbine would be theoretically intervisible with 130 Grade II Listed Buildings or groups of Grade II Listed Buildings (Figs 28-29) (below).

## 5.3 Regional / county

The site proposed for the wind turbine does not fall within any regional or county designations but several designated areas lie within the wider area around it. A substantial portion of the 5 km viewshed, particularly within the northern, western, south western and southern quadrants, falls within an **Area of Great Landscape Value** (AGLV) designation (Fig 22). Much of the 5-10 km viewshed also falls within the AGLV. A small area of the 5-10 km viewshed around Minions and Common Moor, to the north of the proposed site, fall with the designated **Area of Great Historic Value** (AGHV) (Fig 21).

The northern fringe of the 10 km viewshed around Minions, Common Moor and St Neot falls within the **Area of Outstanding Natural Beauty** (AONB), as does a small part of it to the south east near Trerulefoot (Fig 23).

The Cornwall and Scilly Historic Environment Record (HER) records a number of heritage sites within the 1 km viewshed of the proposed site (below). Current guidance from the *National Planning Policy Framework* (paragraph 139) is that 'non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.'

## 5.4 Local

No local designations apply to the site proposed for the wind turbine development.

## 5.5 Rights of way

No rights of way lie in the immediate vicinity of the site proposed for the wind turbine. Public footpath 618/17/1 passes the site approximately 240m downslope to the east, footpath 618/15/2 approximately 300m to the south west and 618/25/1 approximately 360m to the north west (Cornwall Council digital mapping). The proposed wind turbine will be prominent from each of these public rights of way.

Part of the route proposed for the access track to the turbine development follows the line of public footpath 618/15/2.

No part of the immediate area around the proposed sites is registered as open access land under the CROW Act 2000 (effective from 2005).

## 6 History of the site and adjacent area

The history of the area around the proposed wind turbine site prior to the medieval period is unclear. No earlier monuments or finds are recorded in the vicinity by the Cornwall Historic Environment Record (HER) and there are no indications of pre-medieval archaeological features on air photographs assessed by the National Mapping Programme. However, this is not an area which has been subject to any form of recorded archaeological survey or investigation and its historic character (below) and topographical location would certainly suggest some potential for earlier activity. Evidence of flint-working, for example, is often found at vantage points within the landscape (for example, Kirkham 2006) and prehistoric funerary and ceremonial monuments in the form of barrows are similarly often located on ridges and high places (Jones 2005, 69).

Cornwall's Historic Landscape Characterisation (Cornwall County Council 1996) records much of the wider area around the proposed turbine site as Anciently Enclosed Land (AEL), mapped as Farmland: Medieval (Fig 13). This is Cornwall's historic agricultural heartland, much of which is likely to have been first settled and farmed in prehistory and where the present form of the landscape has been strongly shaped by the enclosure of parcels of medieval cultivation strips. Many of the settlements in such areas have early medieval origins, often with names incorporating the Cornish element *tre-*, meaning a farm estate, but this character type may also incorporate archaeological remains of earlier settlements and field systems and of other features extending from the post-medieval period into early prehistory (*ibid*). In this instance some indication of the long history of settlement within this area of Anciently Enclosed land is indicated by casual finds of Roman pottery, some possibly as early as the first century AD, and distinctive early medieval wares at Treggill Vean, approximately 750m south of the proposed turbine (HER MCO 41492).

Treggill was first documented in the Domesday survey of 1086 and was then occupied by four 'villagers' and 16 smallholders, suggesting at least 20 households (Cornwall HER MCO17359). It was listed as of one hide with land for seven ploughs, although only two ploughs were recorded as present. The estate then held 1 acre of woodland and 60 acres of pasture (Thorn and Thorn 1979). (**NB.** These quantities represent an area of several hundred acres by modern measure: Hull 1971, lix-lxii; Harvey 1997, 38-9). Of the other farm estates surrounding the ridge on which the proposed turbine site lies, Trewolland to the north was first documented in 1327 (HER MCO 18086), Trevartha to the east in 1342 (HER MCO 17382) and Roseland to the south west in 1399 (HER MCO 16627). Part of the proposed access track for the wind turbine development runs through the area characterised as Anciently Enclosed Land; some if not all of the field boundaries identified as requiring new gateways or widening of existing gateways are shown on the 1841 tithe map for Menheniot and are therefore potentially 'historic' within the terms of the current (1997) Hedgerow Regulations (below).

The HLC mapping (Fig 13) also identifies a block of fields totalling approximately 41 ha on the upper part of the ridge as Farmland: Post-Medieval; this includes the location of the proposed wind turbine. Fields of this historic landscape type were enclosed from rough ground (downs or heath) in the post-medieval period and are characterised by a distinct morphology of straight boundaries and broadly rectilinear layout. There is archaeological potential within this landscape type for the survival of archaeological remains of a variety of prehistoric monument types which may have formerly stood on rough ground including barrows, either individually or within cemetery groups (Cornwall County Council 1996). Historic landscape characterisation is a broad-brush process – it is not aimed at characterisation on a field-by-field level - and in this instance the area

recorded as Farmland: Post-medieval may have been over-estimated; some of the fields in the southern part of the block close to Tregrill have sinuous boundaries which more closely resemble those of fields enclosed from medieval cultivation strips; fields here almost certainly form part of the medieval fields associated with Tregrill. Scrutiny of large-scale historic mapping (Figs 7 and 8) suggests that the area of Farmland: Post-medieval can be more closely defined as a smaller block around the proposed turbine site, although perhaps also extending north west further than is shown by the HLC mapping. Fields in this area all appear to be secondary to the block of Middle Hill fields to the north (fields 544, 546 and 547 on the Menheniot tithe map: Fig 7), which themselves appear to represent an expansion of the medieval fields of Higher Trevartha.

The earliest published mapping at a scale to potentially show features in the area in which the site is located is Joel Gascoyne's *Map of the county of Cornwall newly surveyed* of 1699 (Gascoyne 1991) (Fig 3). However, this shows only a blank area east of Pope's Mill and south of Trewolland (shown as Trewollan). 'Trevetho' on the map is likely to represent Trevatha. Thomas Martyn's map (1748) is slightly more informative, showing Trewolland, Trevathu (Trevatha), Tregrill (Tregrell) and Goads Mill, the latter apparently on the site of Pope's Mill, but also indicating two side roads extending into the area between these places from the east and thus hinting at tracks crossing the zone around the proposed turbine location (Fig 4). Two documents of about this period refer to routes passing through the study area: a mortgage dated 1742 on three fields called Middle Hill located to the north of the proposed turbine site notes a 'way' from Trevatha to Tregrill (Cornwall Record Office (CRO) BK/427/1, 2); this is the public footpath which runs along the lower slope of the ridge approximately 150m east of the proposed turbine site. A lease of the Middle Hill fields dated 1747, however, refers to a way from them to Pope's Mill over fields 'formerly leased with the Middle Hill fields' (CRO BK/436/1, 2). Some fields on the ridge in the near vicinity of the proposed development site had therefore been enclosed prior to the middle of the eighteenth century, although it is unclear whether this was the case for the whole area. The route from Middle Hill to Pope's Mill is shown running unenclosed across the ridge on the 1st edition Ordnance Survey 1in: 1 mile map, published c 1813 (Fig 6) and, in more detail, on the Ordnance Survey surveyor's drawing of 1803 (British Library online), on which the published map was based (Fig 5).

At the time the Menheniot tithe survey was carried out in 1841 the field in which the proposed turbine site is located was part of the Pope's Mill tenement, held under lease by John Symons. The field was recorded as Lower East Park, 4 acres 3 roods and 26 perches in extent and with the state of cultivation noted as 'arable' (Table 1). Other adjacent fields were all recorded as arable with tenure divided between Tregrill, Higher Trevatha and a tenement named Middle Hills. The fields named Middle Hill in the mid eighteenth-century mortgage and lease referred to above can be identified as a block of three – TA 544, 546 and 547 – to the north of the proposed turbine site (Fig 7).

<b>Holding</b>	<b>Tithe apportionment no</b>	<b>Field name</b>	<b>State of cultivation</b>	<b>Extent</b> (Acres-roods-perches)
PM	515	Higher Broadmoor	Arable	4-1-22
PM	516	Three Acres	Arable	3-3-27
PM	517	Lower Three Acres	Arable	3-2-38
PM	526	Six Acres	Arable	7-0-16
PM	527	Clover Three Acres	Arable	3-3-3
PM	528	Higher East Park	Arable	5-1-24
PM	529	Gratton	Arable	8-1-7
<b>PM</b>	<b>530</b>	<b>Lower East Park</b>	<b>Arable</b>	<b>4-3-26</b>
MH	544	Lower Middle Hill	Arable	6-1-38
MH	546	Middle Middle Hill	Arable	5-2-33
MH	547	Higher Middle Hill	Arable	5-3-30
HT	548	Middle Park	Arable	6-3-12
T	1394	Little Stonedrill	Arable	10-0-27
T	1395	Five Acres	Arable	6-0-18
T	1397	Quarry Park	Arable	4-2-34
T	1398	Ivy Bush	Arable	4-0-10
T	1399	Yonder Middle Hill	Arable	5-1-0
T	1400	Homer Middle Hill	Arable	4-3-25
T	1401	Crabb's Park	Arable	12-1-29
T	1437	Lower Gratna	Arable	3-1-8
T	1438	Higher Gratna	Arable	3-0-17

*Table 1 Fields within the wider study area recorded by the Menheniot tithe survey, 1841 (Fig 7). Holdings: PM – Popes Mill; MH – Middle Hills; HT – Higher Trevatha; T – Tregill. The field in which the proposed turbine site is located is in bold.*

By the date of the 1st edition Ordnance Survey 25in: 1 mile map published in 1882 (Fig 8) there had been some removals of field boundaries in the area, in most instances taking out earlier subdivisions of fields. The most significant feature, however, was the opening of West Mary Ann lead mine on the upper slope of the ridge approximately 100m south west of the proposed location of the wind turbine base. A complex of mines, including Wheal Honey, Wheal Trelawny, Wheal Mary Ann and Wheal Trehane, all in operation during the middle decades of the nineteenth century, lay a little over 1 km to the east of the proposed wind turbine site (MCOs 12987, 13043, 13157, 29588, 52607). The Grade II Listed stack of Wheal Honey (National Heritage List no 1140023) survives as a prominent landscape feature in this area. In the later



nineteenth century an attempt was made to exploit lodes extending west from these mines and West Mary Ann mine (MCO12774) was established in 1875 (*Royal Cornwall Gazette*, 5 June 1875; Bartlett 1994, 103-7). The 1st edition 25in map showed 'West Mary Ann Mine (silver lead)' with a shaft, an adjacent area of spoil and a small rectangular structure; this was probably an engine house to accommodate a 22-inch engine installed in 1879 (Bartlett 1994, 103-7). An adit was driven into the hill from close to the River Seaton, to the west.

The 1st edition map (Fig 8) shows an access track running up the slope to the mine site from a terrace way running south east from Pope's Mill and a second track running along the crest of the ridge from the Tregrill direction. Mining activity at West Mary Ann appears to have been restricted to the south side of a field boundary which at the time of the tithe survey in 1841 had divided Tregrill land to the south from that to the north forming part of the Pope's Mill tenement: mining may therefore have been focused within the Tregrill land.

In 1883 a larger engine house, stack and boiler house were constructed for a new more powerful steam engine to be brought to the site from Wheal Mary Ann (*Royal Cornwall Gazette*, 8 June 1883; Bartlett 1994, 106). However, the mine ceased operation in October 1884 and its equipment was auctioned in March 1885 (*ibid*, 106-7). There are no records of output from the operation. The 2nd edition Ordnance Survey 25in map of 1907 shows the mine as 'disused' and depicted what appear to be two linear dumps of spoil projecting east and south from the field boundary but with no other features in the vicinity of the working. Spoil from the mine has been plotted from air photographs by the National Mapping Programme (Fig 14).

The 2nd edition 25in map (Fig 9) shows little other change in the adjacent landscape since the 1st edition but comparison with current Ordnance Survey mapping (Fig 10) and recent air photographs (Fig 11) indicates substantial removal of historic boundaries and the creation of new boundaries during the twentieth century. Only two historic boundaries appear to survive in the vicinity of the turbine site: one to the north, formerly the southern boundary of the Middle Hill fields, and one to the west adjacent to the former site of West Mary Ann mine. The boundary along the western side of the field in which the proposed turbine site lies, alongside the farm track, may also be a surviving historic feature.

Current mapping (Fig 10) shows an isolated structure approximately 140m south west of the proposed turbine site. This appears on air photographs taken in 2005 (Fig 11) but was not present on air photographs dating from 2000. Its function is unknown.

## **7 Results of site visit**

There is no public access to the immediate vicinity of the proposed turbine site and no attempt was made to visit it. It is therefore not known whether there are any visible heritage features in the immediate locality. Access to the ridge is possible via public footpaths 618/25/1 and 618/15/2 and visits to points on these provided information on the wider area around the proposed turbine site and an indication of its visibility in the wider landscape (Figs 31-2).

## **8 Results of viewshed analysis**

Figures 15-30

In line with guidance by English Heritage the ZTV was mapped to a distance of 10 km from the site. The visibility of the proposed turbine would diminish with distance and, at many points within the viewshed, would effectively be blocked by intervening buildings within settlements or farms or by mature groups of trees (albeit on a temporary basis, should such trees subsequently be felled).

The viewshed analysis for the current proposed site indicates an extensive Zone of Theoretical Visibility (ZTV) extending in all directions but over varying distances (Fig 16).

### **8.1 1 km radius ZTV**

Figures 16, 29 and 30

The ZTV indicates that the turbine mast and / or blades will be visible from (very approximately) 85 per cent of this zone. The bottom and eastern slope of the steep-sided valley of the River Seaton to the west falls outside the viewshed, but the western side of the valley and the landscape beyond would mostly be in direct view.

Two small pockets adjacent to Higher and Lower Trevartha, to the north east, also fall outside the ZTV, as does a short section of the stream valley to the east of the proposed site immediately beyond Tregrill.

One Grade II\* Listed Building, Little Tregrill (National Heritage List no 1312676), falls within the 1 km ZTV, as does the Grade II Listed Higher Trevartha farmhouse (National Heritage List no 1312711) and the adjacent Grade II Listed wall, gatepiers, gate and arch to the south and west (National Heritage List no 1140055).

### **8.2 1 km to 5 km radius ZTV**

Figures 16, 18, 20, 24, 27, 28 and 29

The dissected character of the physical topography within the 1 km to 5 km radius of the ZTV means that only approximately half of this area falls within the viewshed of the proposed wind turbine. In the near vicinity of the site both Liskeard and Menheniot lie within the ZTV. Beyond this there are discontinuous blocks of intervisibility within all four quadrants. The most significant settlements falling within this zone are St Ive, Quethiock and St Keyne.

Two potentially intervisible Scheduled Monuments, one Registered Park and Garden and two Conservation Areas fall entirely or partly within this area, as do two Grade I Listed Buildings and three Grade II\* Listed Buildings. A small portion of the Cornish Mining World Heritage Site extends into the 5 km ZTV.

The zone also includes a number of Grade II Listed Buildings.

### **8.3 5 km to 10 km radius ZTV**

Figures 17, 18, 19, 20, 25 and 26

This zone extends to Minions and Common Moor to the north, to Callington to the north east, Landrake to the east, Dobwalls and Herodsfoot to the west, Duloe to the south west and as far as Looe to the south. The proposed turbine would be visible from less than 50 per cent of the area.

This zone contains a substantial number of Scheduled Monuments and Grade I and II\* Listed Buildings, the whole of the Minions and Caradon Hill part of the Cornish Mining World Heritage Site, the Registered Battlefield of Braddock Down and the Registered Park and Garden of Port Eliot. In practice, however, very few of these heritage assets are likely to have a significant degree of intervisibility with the proposed wind turbine at Tregrill because of the complex nature of the landscape: many views are blocked by local trees and buildings and at distances of more than 5 km it is likely that the turbine will also merge with other modern elements such as pylons.

### **8.4 International designations within the 10 km radius ZTV**

Figure 18

The whole of the Cornish Mining World Heritage Site area around Minions and Caradon Hill falls within the 10 km ZTV of the proposed wind turbine site, with a small pocket

east of St Cleer extending into the 5 km zone. At this distance, given the nature of the heritage assets represented by the designation, it seems unlikely that there would be a significant negative impact from the proposed development.

## **8.5 Scheduled Monuments within the 10 km radius ZTV**

Figure 25

Scheduled Monuments are archaeological sites considered to be of national importance and are designated under the Ancient Monuments and Archaeological Areas Act 1979.

Thirty-four Scheduled Monuments lie within the 10 km ZTV of the proposed wind turbine site at Tregrill. In summary these are:

- 3 earlier prehistoric hillforts (these are area Scheduling incorporating other features in addition to the principal identified asset)
- 1 portal dolmen
- 15 cairns of various types
- 1 individual barrow
- 1 barrow group
- 1 stone circle complex (Hurlers)
- 1 roundhouse settlement
- 3 hillforts
- 1 enclosed settlement (round)
- 1 group of transhumance dwellings
- 1 early medieval inscribed stone / cross
- 3 wayside crosses
- 1 streamwork
- 1 nineteenth-century copper mine.

Some of these Scheduled Monuments, while potentially intervisible with the proposed wind turbine site, are structures such as wayside crosses, inscribed stones, transhumance dwellings and industrial complexes, the settings of which are inherently very local. None of these are close to the proposed development, and, in line with English Heritage guidance, no assessment on impacts on their settings has been undertaken.

By contrast, earlier and later prehistoric hillforts, barrows, cairns and stone circles, in contrast, were intended, when constructed, to be visible within extensive landscapes; their settings are therefore considerably larger. Some of the Scheduled Monuments within the 10 km viewshed consist of monuments of these types, and assessments of impacts on the settings of a number of these were judged to be required where they lay relatively close to the site proposed for the wind turbines, where substantial intervisibility was likely, where they were judged to have sensitive settings or where impacts on or intrusion into key views of the sites appeared likely to occur.

Although there is likely to be some degree of intervisibility between these sites and the proposed wind turbine, in most instances the views are distant – only two of the Scheduled Monuments occur within the 5 km ZTV of the proposed site (below) – and from most others the turbine would be seen in the context of other comparable visual elements in the landscape (below). Some views from more distant Scheduled Monuments appear likely to be blocked by nearby vegetation or structures.

### **8.5.1 Scheduled monuments within the 5 km radius ZTV**

The two Scheduled Monuments within the 5 km ZTV are the hillforts on Padderbury Top (National Heritage List no 1007297) and Blacketon Farm (National Heritage List no 1007296). The viewshed modelling indicates that the blades and hub of the proposed turbine, approximately 4.5 km distant, would be in full view from the northern and part of the eastern quadrants of Padderbury. This was confirmed during fieldwork (Fig 33). The view from within the Scheduled area to the proposed turbine site includes Menheniot church spire (Grade I Listed) to the left of the direct line of sight. However, it also incorporates a run of high voltage electricity pylons crossing the southern end of the ridge on which the proposed turbine site is located, the recently installed solar farm at Higher Trevartha and the built-up area of Liskeard. This portion of the vista from Padderbury is therefore already considerably compromised by modern intrusions, although it should be pointed out that the addition of turbine blade *movement* in an otherwise relatively static and predominantly rural landscape is likely to represent a considerably more significant visual intrusion.

There is no public access to the Scheduled hillfort site at Blacketon Farm, 3.9 km from the proposed turbine site, but it is evident from the ZTV and photographs out from the area of the site (Fig 32) that the two will be fully intervisible. Again, however, there will be other modern intrusions into the view from the Scheduled site, including the Trevartha solar farm and a run of large electricity pylons.

### **8.6 Registered Parks and Gardens within the 10 km radius ZTV**

Figure 20

A small area on the western fringe of the Registered Park and garden of Port Eliot (Grade I; National Heritage List no 1000426) falls within the 10 km viewshed of the proposed wind turbine site. The area of intervisibility appears to be predominantly woodland; views out in the direction of the proposed site are therefore likely to be limited.

Much of the Grade II Registered Park and Garden at Catchfrench (National Heritage List no 1001314) falls within the ZTV of the proposed Treggill wind turbine, straddling the 5 km radius from the proposed turbine site. Views towards the site from the principal frontage of the house (just outside 5 km) appear likely to be masked by trees and rising ground (Fig 34), but views from the parkland to the north west (not accessible during fieldwork) are likely to include it.

### **8.7 Registered Battlefields within the 10 km radius ZTV**

Figure 19

The eastern fringe of the Registered Battlefield of Braddock Down (National Heritage List no 1000005) just falls within the 10 km viewshed of the site proposed for the wind turbine at Treggill. It seems unlikely that the proposed turbine would be strongly visible within the landscape at that distance.

### **8.8 Listed Buildings**

The Planning (Listed Buildings and Conservation Areas) Act of 1990 imposes (Section 1) a duty on the Secretary of State to compile or approve a list or lists of buildings of special architectural or historic interest as a guide to the planning authorities when carrying out their planning functions (Department for Culture, Media and Sport 2010).

The statutory criteria for listing are the special architectural or historic interest of a building. Many buildings are interesting architecturally or historically, but, in order to be listed, a building must have 'special' interest.

Buildings on the list are graded to reflect their relative architectural and historic interest:

Grade I buildings are of exceptional interest, sometimes considered to be internationally important (only 2.5 per cent of Listed Buildings are Grade I);

Grade II\* buildings are particularly important buildings of more than special interest (5.5 per cent of Listed Buildings are Grade II\*).

Grade II buildings are nationally important and of special interest.

### **8.8.1 Grade 1 and II\* Listed Buildings within the 10 km radius ZTV**

Figures 26 and 27

The following Grade I Listed Buildings lie within the 10 km ZTV:

<b>National Heritage List no</b>	<b>Name, location</b>	<b>Distance from proposed wind turbine site (approx)</b>
1329431	Church of St Lalluwly, Menheniot	1.35 km
1140035	Church of St Hugh of Lincoln, Quethiock	3.6 km
1329177	Molenick farmhouse, near Tideford	6.25 km
1312202	Church of St Cuby, Duloe	7.15 km

The following Grade II\* Listed Buildings lie within the 10 km ZTV:

<b>National Heritage List no</b>	<b>Name, location</b>	
1312676	Little Treggill and outbuildings adjoining to south west, Menheniot	0.77 km
1329410	Pengover Manor farmhouse, Menheniot	1.54 km
1140840	Church of St Keyne, St Keyne	4.64 km
1137947	Polgover, Morval	4.86 km
1159487	Trethevy farmhouse, St Cleer	5.3 km
1311103	Bible Christian chapel, St Cleer	5.65 km

### **8.8.2 Grade 1 and II\* Listed Buildings within the 5 km radius ZTV**

Of the Grade I and II\* Listed Buildings listed above, the following six lie within the 5 km viewshed and are therefore potentially more vulnerable to impacts on their setting from the proposed wind turbine:

#### **Church of St Lalluwly, Menheniot (Grade I; National Heritage List no 1329431)**

This Grade I Listed church has a particular presence in the local landscape because of the distinctiveness and visibility of its late fourteenth or early fifteenth century spire, a rare feature in the Cornish context. Many views to the church from the quadrant to the south east would also include the proposed wind turbine (cover photograph; Figs 33, 35). This background is already to some extent compromised by large electricity pylons, the recently-installed Higher Trevartha solar farm, the built-up area of Liskeard and, from the east, the recently operational 66.7m to tip wind turbine at Trethawle, near Liskeard. However, the proposed wind turbine would add a further intrusive modern element, emphasised by its size, proximity and the movement of the blades.

Views out from the immediate vicinity of the church are for the most part restricted by adjacent buildings. However, views from the churchyard to the north and possibly from part of the road immediately west of the church could include sight of the turning turbine blades over intervening buildings and other obstacles: the church is at 108m above sea level; the turbine hub would be at 172m above sea level and the blade tips

at 199m, at a distance of 1.35 km. This could be a significant visual distraction in enjoyment and appreciation of the heritage asset.

**Church of St Hugh of Lincoln, Quethiock (Grade I; National Heritage List no 1140035)**

The church at Quethiock is sited within a hollow and the viewshed indicates that only the eastern part of the churchyard falls within the 5 km ZTV. In practice it seems probable that views out from the church towards the proposed wind turbine would be blocked by buildings and trees on the near slope. However, a view to the church tower from within the village to the east could have the turning blades of the proposed turbine visible in the background.

**Little Treggill and outbuildings adjoining to south west, Menheniot (Grade II\*; National Heritage List no 1312676)**

Little Treggill is the closest heritage asset to the proposed turbine site with a Grade I or II\* designation, located only 0.77 km to the south south east. The house lies within the ZTV of the proposed turbine blade tips, although outside the ZTV modelled for the hub. It seems likely that the revolving blades would be visible above a steep slope and vegetated boundary when approaching the northern elevation of the structure adjacent to the public road. Approaches to the asset will also be affected by views to the proposed turbine, and this may be argued to have a negative impact on its setting.

English Heritage guidance on policy principles to be taken into consideration when considering development proposals affecting the setting of a designated heritage asset notes that 'the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration' (English Heritage 2010, Policy HE10, para 114). It remains to be demonstrated that the setting will not be negatively affected by noise and vibration at this relatively short distance from the proposed wind turbine.

**Pengover Manor farmhouse, Menheniot (Grade II\*; National Heritage List no 1329410)**

The north-western elevation of Pengover Manor farmhouse just falls within the 5 km ZTV of the proposed turbine blade tips; most of the plan of the structure falls just outside the ZTV. Views to the north-east elevation of the structure from the adjacent road, which itself lies within the blade tip ZTV, could include the blades revolving behind it at a distance of a little over 1.5 km.

**Polgover, Morval (Grade II\*; National Heritage List no 1137947)**

The Grade II\* Listed structure lies fully within the hub and blade tip ZTVs at a distance of just under 4.9 km from the proposed wind turbine. There is no public access to the site but views from the adjacent public road, similarly within the ZTVs, suggests that there would be direct views to the north to the proposed turbine site. The principal elevation of the Listed structure – a 'polite' building from which it may be assumed that there were intended views – faces north east and could include much of the height of the turbine and the revolving blades.

**Church of St Keyne, St Keyne (Grade II\*; National Heritage List no 1140840)**

The east end of the church of St Keyne extends into the 5 km ZTVs of both the hub and blade tips of the proposed wind turbine, which also cover a substantial part of the adjoining churchyard. Much of the perimeter of the churchyard is currently bounded by mature trees, limiting views out, although this may be less of a factor in winter. Views to the church from the adjacent road to the north west could be affected by peripheral visibility not only of the proposed turbine but also the rather closer 67m to tip installation at Trethawle: the two turbines would be in close alignment when viewed from a point on the nearby road, potentially introducing a distracting visual element.

## 8.9 Grade II Listed Buildings within the 5 km radius ZTV

Figures 28 and 29

Within the 5 km ZTV there are 121 Grade II Listed Buildings (including grouped features). Of these, 69 Listed structures of a variety of forms are located within the built-up area of Liskeard. Views outwards from and views into this area are extremely limited or non-existent. The impact on the setting of these structures is therefore judged likely to be small or negligible.

The remaining Grade II Listed Buildings within the 5 km radius ZTV of the proposed turbine site comprise:

- 17 farmhouses
- 3 barns
- 1 Sunday School
- 3 houses
- 1 pair of lodges
- 1 group of cottages
- 2 public houses
- 1 toll house
- 1 group of almshouses
- 1 mine stack
- 1 cross
- 2 holy wells (one with adjacent cross)
- 2 milestones
- 1 pair of bridges
- 1 arch
- 4 groups of gate piers and walls
- 10 tombchests

Impacts on the settings of structures such as milestones, lodges, gatepiers and walls, chest tombs, crosses, bridges, holy wells and agricultural buildings such as barns are considered unlikely unless they are in very close proximity to the proposed wind turbines: the settings of features of these forms are essentially small-scale, immediate and local. Other structures such as houses and farmhouses may have more extended settings, but in terms of their designation as heritage assets these are still likely to be limited in extent. Few if any of these structures are likely to have been constructed with the historic aim of being dominant in the landscape, or intended to be viewed from a distance, or with designed vistas. On the other hand, several of the assets were designed to be 'ornaments' to the adjacent area, often to be viewed from an adjacent approach.

It should be noted that this assessment of 'setting' refers to the *heritage* significance of these historic structures; individuals' perceptions of 'setting', in terms of amenity and aesthetics, or the potential for enjoying and appreciating a heritage asset, may, of course, differ.

### 8.9.1 Grade II Listed Buildings within the 2 km radius ZTV

Figure 29

In this context, impacts on potentially sensitive Grade II Listed Buildings have been evaluated within an area extending approximately 2 km from the proposal site. Given

their distances from the site of the proposed wind turbine, the local topography and vegetation and the site types (and hence their sensitivities), only minimal impacts on the settings of the remaining sites are considered probable. These Grade II heritage assets assessed are detailed below.

### **Higher Trevartha farmhouse (National Heritage List no 1312711)**

This, together with the adjacent Grade II Listed wall, gatepiers, gate and arch (National Heritage List no 1140055), is the closest Grade II Listed structure within the 2 km ZTV, approximately 670m from the proposed turbine site. The viewshed modelling indicates that the turbine blade tips will be visible from the main frontage of the house, possibly partly screened by trees, but that the turbine hub and blades will be clearly visible in views from the near approaches to the house on public roads from the north and the east. These views are to an extent already compromised by several large modern agricultural buildings making up the adjacent farm complex, although the visual dominance and impact of the turbine in the landscape from these approaches will be of a substantially greater order of magnitude.

### **Wheal Honey stack (National Heritage List no 1140023)**

This is 1.1 km from the proposed turbine site and lies fully within the viewshed of both hub and blade tips. Views west to the stack (390m distant) from public footpath 618/6/1, north west of Tregondale Farm, are likely to have the turbine hub and blade tips fully visible behind it at a distance of approximately 1.5 km.

### **Fernpass (National Heritage List no 1136829)**

Views to the Grade II Listed house in Menheniot village are constrained by the built-up setting and are unlikely to include the proposed turbine when seen from most adjacent locations within the village.

### **Sunday School (National Heritage List no 1329434)**

The Grade II Listed Sunday School located on the northern edge of the churchyard of the church of St Lalluw in Menheniot arguably has a setting which extends primarily to the immediate area of the churchyard itself and adjacent streets. It is, however, a Gothic-style building, clearly intended as an ornament to the immediate locality of the church and the village core. Views to the structure from the south east, from within the churchyard or from the street immediately outside, could include the proposed wind turbine in the background at a distance of just over 1.35 km. In this context the turning blades would be a potential distraction in enjoying and appreciating the heritage asset and may therefore be deemed to affect its setting.

### **Tencreek (National Heritage List 1312671)**

The Grade II Listed farmhouse lies within the ZTVs of both the proposed turbine hub and blade tips. There is no access to the site but it appears likely from current mapping and recent air photographs, and from a site visit to the nearest accessible point, that there would be direct views to the turbine from the eastern frontage of the structure, possibly partly screened by boundary trees. Tencreek dates from the sixteenth century and was formerly a place of some significance (see listing description). The 1st edition Ordnance Survey 25in: 1 mile map of c 1880 showed it as 'Remains of a Mansion'. Further investigation may determine whether the site was associated with a designed landscape, including distant views, and whether elements of this survive in the surrounding area. If such elements do survive the proposed development may be deemed to have an impact on the setting of the asset.

### **Tencreek Cottages National Heritage List no 1140058)**

This pair of cottages lies on the fringe of the ZTVs of both the proposed turbine hub and blade tips; the ZTVs also cover the A38 main road to the north west and south east. The design of the cottages, with an atypically steep roof, gabled dormers and interesting window styles, indicates that they were intended to be a visual asset at the



entrance to the approach lane to Tenecreek, itself a site of some importance in the area (above). The open landscape to the north of the cottages makes it probable that the proposed wind turbine would be visible from the A38 when approaching the cottages from either direction and may therefore be deemed to have an impact on their setting (Fig 36).

### **The Old Toll House (National Heritage List no 1203190)**

The Listed structure lies within the ZTV of the proposed turbine blade tips, in a small pocket in which the ZTV modelling suggests the hub would not be visible. The original setting of the structure was as a functional feature alongside the former turnpike route between Liskeard and Torpoint. As such it was built with some architectural pretensions and was clearly intended to be viewed by travellers on the adjacent road. The former road has been bypassed at this point and the site now lies on the rear service access route to the nearby retail park. Nonetheless, the structure survives as a heritage asset of some character and interest, albeit now distanced from its original function and setting. It is possible that views to the feature from the adjacent road – the former turnpike – could include the turning blades of the proposed turbine at a distance of a little under 2 km and that this would represent a visual distraction in appreciating and enjoying it.

### **8.9.2 Grade II Listed Buildings within the 2 km radius, not within the ZTV**

Figure 30

#### **Roseland House and garden wall to west and north. Railing to west (National Heritage List no 1136708)**

This Grade II Listed Building lies approximately 640m south south west of the proposed turbine site. The ZTV modelling indicates that it will not lie within the viewshed of either the hub and tip of the proposed development. There appear to be no publicly accessible views to the asset other than from the road immediately fronting the house. However, approaches by road to the heritage asset would pass through the ZTV. The building is designated, according to the Listing description, for both its architectural *and* historic significance: it was the home of the Lapenotiere family and is therefore associated with the Lieutenant Lapenotiere who brought news of Nelson's victory at Trafalgar to the Admiralty via Falmouth in 1805. It may therefore potentially draw a wider constituency of interest than simply for its architectural significance. As such, its setting may be argued to extend well beyond its immediate physical location and to include the local approaches by which interested viewers may reach it. In this instance, therefore, the view of the proposed turbine from those approaches, particularly that from the A38 from the west, from which the proposed turbine would be in direct line of sight ahead, may be argued to have a potentially negative impact on its setting.

As with the Grade II\* designated Little Tregrill (above), it remains to be demonstrated that proximity to the proposed turbine will not result in a significant impact on the setting of the asset caused by noise and vibration.

### **8.10 Conservation Areas within the 5 km radius ZTV**

Figure 24

The Conservation Area of Liskeard and a small portion of that for Minions fall within the 5 km radius ZTV.

In the case of Liskeard the built-up, urban form of the Conservation Area means that, as for Listed Buildings, the impact of the proposed Tregrill wind turbine on the setting would be negligible. No specific vistas within or from the Conservation Area have been identified on which the proposed development would impinge.

For the Minions Conservation Area, unusual in that it is predominantly rural, the small portion extending into the 5 km radius is predominantly agricultural land with a small

area of Open Country Access Land / Registered Common. It also includes a Grade II Listed Building, Newton farmhouse (National Heritage List no 1311065). The impact on the Conservation Area is likely to be minor.

### **8.11 Undesignated sites within the 1 km ZTV**

Figure 15

The ZTV mapping suggests that approximately 85 per cent of the landscape within a 1 km radius of the proposed Tregrill turbine site will be intervisible with all or part of the turbine. The Cornwall and Scilly Historic Environment Record (HER) records 18 sites within this zone which are not otherwise designated:

#### **Early medieval / medieval**

- MCO17832 – Trevartha, settlement
- MCO17359 – Tregrill, settlement
- MCO16627 – Roseland, settlement
- MCO43070 – Roseland, field system / lynchets
- MCO43061 – Trevartha, field system / lynchets

#### **Post medieval / modern**

- MCO13157 - Wheal Trehane, mine
- MCO29588 – Wheal Mary Ann, stamping mill
- MCO52607 – Wheal Trehane, engine house
- MCO56018 – Tregrill, bee boles
- MCO12774 – West Mary Ann, mine
- MCO29587 – Popes Mill, mill
- MCO29585 – Cartuther, mill
- MCO43067 – Roseland, leat
- MCO43073 – Roseland, leat
- MCO29586 – Roseland, quarry
- MCO43069 – Roseland, quarry
- MCO4691 – Roseland, foundry

#### **Undated**

- MCO41492 – Tregrill find spot (Roman to medieval pottery)

In most instances it seems probable that the proposed wind turbine would have minimal impact on the settings of the historic features represented by these records. However, in the case of the locations of the former mining sites at West Mary Ann, Wheal Trehane and Wheal Mary Ann, the proposed turbine would – in landscape terms – undoubtedly dwarf the surviving remains and arguably diminish the status of these sites which represent (with the exception of churches) historically the most substantial features deriving from human activity in the near vicinity.

## **9 Field verification of the ZTV**

The viewshed mapping and potential impacts were, wherever possible (given constraints on public access) ground checked from a number of locations, including sites at, adjacent to or overlooking the heritage assets identified as having settings potentially impacted upon by the proposed development.

At each accessible designated heritage site the potential visibility (and proportional visibility) of the proposed wind turbine was considered. Views out towards key heritage assets were checked from the nearest accessible point to the application site. True levels of intervisibility and visual impact are impossible to determine from ground level in advance of construction and operation of the development; however, the general degree of openness of views out from and towards the site could be assessed.

Where possible, photographs were taken from key locations within the surrounding landscape and also from the closest accessible point to the proposed development.

## **10 Cumulative impacts**

Recent English Heritage guidance requires assessments of renewables' applications to take account of cumulative impacts, as well as those relating to specific proposals.

In the current instance the proposed site lies close to the recently installed Higher Trevartha solar farm, which extends over an area of more than 8 ha in three fields a little under 300m to the north. This is already a significant feature in the local landscape. A 67m to tip wind turbine has recently been erected on a site north of Oak House, Trethawle, approximately 2 km to the south west of the proposed Tregrill site (PA12/04542). Applications for screening opinions have been submitted for a number of turbine installations in the Horningtops area approximately 3 km to the south but are now recorded as 'closed'; one application in this area was refused permission.

## **11 Synthesis**

The desk-based assessment did not indicate the presence of any significant archaeological remains which might be directly impacted upon by the proposed wind turbine and cabling. However, the access route lies through land characterised as Farmland: Medieval in the vicinity of the historic settlement of Tregrill and there is therefore the potential for buried archaeology in this area. There is also potential for buried archaeology in the area of Farmland: post-medieval around the proposed location for the turbine base.

Impacts on both designated and undesignated heritage assets within the local landscape resulting from the construction of a wind turbine on land at Tregrill will vary with their distance from the turbine site, their state of preservation, their nature, and the effects of reduced or blocked intervisibility due to local topography, vegetation (including vegetated Cornish hedges) and the presence of other buildings. In the case of some designated assets, even where intervisibility would be present, distance from the site would be likely to significantly reduce impact.

There will be some impact on the Historic Landscape Character of the surrounding landscape, given that this will be the first structure of its type within what is a predominantly agricultural landscape, the character of which very much reflects its medieval origins.

There is the potential for impacts up to moderate/negative on the settings of sensitive heritage assets within the local landscape, including high grade Listed Buildings and Scheduled Monuments.

## **12 Policies and guidance**

The following section brings together policies and guidance (or extracts from these) used in the development of the assessment and its methodology.

### **12.1 National Planning Policy Framework 2012**

The following paragraphs within the above document (Department for Communities and Local Government 2012) frame planning policy relating to the historic environment and are germane to this assessment:

**128.** In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

**129.** Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

**132.** When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II\* listed buildings, grade I and II\* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

**133.** Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- the harm or loss is outweighed by the benefit of bringing the site back into use.

**134.** Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

**135.** The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

**139.** Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

## **12.2 PPS5 English Heritage guidance**

The English Heritage and DCMS (Department for Culture, Media and Sport) document 'PPS5 Planning for the Historic Environment: Historic Environment Planning Practice

Guide' provides current guidance on PPS5 (and its successor the National Planning Policy Framework) and its application.

This refers to the need, for decision-making in response to an application for change that affects the historic environment, of providing and assessing, at a level appropriate to the relative importance of the asset affected, information on the asset and its extent, on its setting, and on the significance of both of these aspects. Section 5, 54 states that 'Heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset and the contribution of its setting is very important....'

Section 5 on Policies HE6 to HE 12, 58, notes among appropriate actions (in point 5) 'Seek[ing] advice on the best means of assessing the nature and extent of any archaeological interest e.g. geophysical survey, physical appraisal of visible structures and/or trial trenching for buried remains.'

The section on Policy HE10 defines setting as follows:

**113.** 'Setting is the surroundings in which an asset is experienced. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral.'

**114.** 'The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and, by our understanding of the historic relationship between places. For example, buildings that are in close proximity but not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each. They would be considered to be within one another's setting.'

## **12.3 Former Cornwall Structure Plan**

The following policies in the Cornwall Structure Plan relate to the historic environment are currently used to guide responses to applications.

### **12.3.1 Policy 1**

'Development should be compatible with:

The conservation and enhancement of Cornwall's character and distinctiveness;

The prudent use of resources and the conservation of natural and historic assets;

A reduction in the need to travel, whilst optimising the choice of modes, particularly opportunities for walking, cycling and the use of public transport;

Through developing the principles of Policy 1 it is intended to integrate environmental values with land use and transport policies, achieving patterns of development that reflect strong environmental protection and stewardship of resources.'

### **12.3.2 Policy 2**

'Throughout Cornwall, development must respect local character and:

- Retain important elements of the local landscape, including natural and semi-natural habitats, hedges, trees, and other natural and historic features that add to its distinctiveness;
- Contribute to the regeneration, restoration, enhancement or conservation of the area;

- Positively relate to townscape and landscape character through siting, design, use of local materials and landscaping.
- The conservation and enhancement of sites, areas, or interests, of recognised international or national importance for their landscape, nature conservation, archaeological or historic importance, including the proposed World Heritage Site, should be given priority in the consideration of development proposals.'

## 12.4 Former Caradon District Council policies and guidance

Although now part of Cornwall Council, Caradon District Council policies listed in its Local Plan (Caradon District Council 1999) continue to be relevant. Selected policies relevant to the historic environment and proposed development are listed below.

**Major Objective Four** includes the following policy objectives:

'To protect the appearance of the countryside, especially areas of landscape importance' (*ibid*, 11); and

'To protect the archaeological heritage and important wildlife and semi-natural habitats' (*ibid*).

**Policy CL19 (Archaeology)** notes that (i) 'development proposals which would prejudice the preservation of nationally important archaeological remains, whether Scheduled or not, and their settings, will not be allowed unless the development is also of national importance and there is no alternative site' (*ibid*, 97).

**Policy EV3 (Listed Buildings and redevelopment in Conservation Areas)** states that (i) all proposals for works (including demolition) which would directly affect the fabric or setting of a Listed Building must have special regard to the desirability of preserving the building or its setting or any features of architectural or historic interest which it possesses' (*ibid*, 106).

**Policy REN2 (On-shore wind energy)** indicates that 'in AONBs, HC, SSSIs, NNRs, SAM and Best and Most Versatile Agricultural Land, wind turbines and wind farms will only be permitted if the proposal would not have an unacceptable impact on the specific features or qualities which justified such designation.

'In other areas, wind turbines and wind farms will only be permitted if the proposal would not cause unacceptable damage to amenity, landscape, scientific, archaeological nature conservation [*sic*] or historic interests, and there is no adverse impact on nearby land falling within the designations given in the above paragraph' (*ibid*, 165).

## 12.5 Hedgerow Regulations

Under the current 1997 Hedgerow Regulations, owners wishing to remove all or part of a hedgerow considered to be historically important must notify the Local Planning Authority (LPA). Criteria determining importance include whether the hedge marks a pre-1850 boundary, and whether it incorporates an archaeological feature. The LPA may issue a hedgerow retention notice prohibiting removal.

# 13 Probable impacts of the proposed development

## 13.1 Types and scale of impact

Two general types of archaeological impact associated with wind turbine developments have been identified and are outlined below.

### 13.1.1 Construction phase

Construction of the wind turbine could have direct, physical impacts on the buried archaeology of the site through the construction of the turbine foundations, through the

undergrounding of cables, and through the provision of any works compound, together with any permanent or temporary vehicle access ways into and within the site. Such impacts would be **permanent** and **irreversible**.

### 13.1.2 Operational phase

The proposed wind turbine might be expected to have a visual impact on the settings of some key heritage assets within its viewshed during the operational phase, given its height (77 metres), its prominent position in the local topography and the open nature of the local landscape. Such factors also make it likely that the development would have an impact on Historic Landscape Character. These impacts would be **temporary** and **reversible** should the turbine subsequently be dismantled and not re-powered or replaced. However, the precedent established by the presence of the turbine, if built, may generate further similar developments and encourage successor developments in the future. The impacts cannot therefore be said to be necessarily limited to the lifetime of the currently proposed turbine.

### 13.1.3 Scale and duration of impact

The impacts of the wind turbine on the historic environment may in theory include positive as well as adverse effects. For the purposes of assessment impacts are evaluated on a seven-point scale, with the most severe impact rated as **negative / substantial**:

- positive /substantial**
- positive /moderate**
- positive /minor**
- neutral**
- negative /minor**
- negative /moderate**
- negative / substantial**

**Negative/unknown** is used where an adverse impact is predicted but where, at the present state of knowledge, its degree cannot be evaluated satisfactorily.

The assessment also distinguishes where possible between **permanent** and **temporary** effects, or between those that are **reversible** and **irreversible**, as appropriate, in the application of the scale of impacts.

### 13.1.4 Potential and residual impacts

Some potential adverse impacts may be capable of mitigation through archaeological recording or other interventions. In the assessments forming section 13.2, where appropriate, both 'potential' and 'residual' impacts are given; that is, expected impacts 'before' and 'after' such work, principally in relation to the development phase. A possible mitigation strategy is outlined below in section 14.

## 13.2 Assessment of impact

Overall, the impacts of the proposed wind turbine on the historic environment resource are assessed as having a potential scored as **negative / unknown**, with the possibility of some **negative / moderate** impacts. Impacts on potential sub-surface archaeology within the development site might be **negative / substantial**, but could be limited to **negative / minor** or **neutral** provided that appropriate mitigation is undertaken.

The assessments supporting this general statement are outlined in the following sub-sections. To comply with current policies and guidance (section 12) these provide assessments of impact in terms of different aspects of the archaeological resource.

### 13.2.1 Impact on archaeological deposits within the development area

Ground disturbance associated with the installation of the turbine base, ancillary works and access track during the construction phase could result in permanent, irreversible loss of below ground remains of archaeological sites within the area, or elements of these. The works, where deeper than current topsoil levels, might affect buried cut features.

The scales of impact will vary with the significance of each individual site, and with the proportion of any site which would be affected. Notably, buried features could be disturbed, truncated or removed. In the absence of detailed information regarding the survival of sub-surface archaeology within the development area and the extent of groundworks or other potentially intrusive activity associated with the development, this impact is considered to be **negative / unknown**, with a residual impact of **negative / minor** or **neutral** provided that appropriate mitigating work is carried out. These impacts would be **permanent** and **irreversible**.

Identifier	Site	NGR	Impact
None	Buried archaeological sites, possibly including settlement remains and pre-medieval field systems.	Centred SX 27995 63115	Damage to sub-surface archaeology through construction of access track.
None	Buried archaeology sites, possibly including funerary, ceremonial or occupation sites.	SX 27811 63753 (and adjacent access track)	Damage to sub-surface archaeology through construction of access track and turbine base, etc.

### 13.2.2 Impacts on the settings of key heritage assets

The proposed wind turbine is considered to be likely to have some impacts on the settings of key heritage assets in the wider surrounding area, these being summarised as **negative / moderate** to **neutral** overall

During the operational phase the wind turbine could have **negative / moderate** impact on the setting of the following assets:

- Grade I Listed church of St Lalluwly at Menheniot, primarily in terms of the effect on views toward the church from certain areas of the adjacent landscape. There may also be an impact on views to and from the churchyard within the settlement.
- Grade II\* Listed Little Treggill, with potential for possible visual intrusion on its setting and a **negative / unknown** potential for an impact on setting from noise and vibration.
- Grade II Listed Higher Trevartha, particularly in terms of the impact on setting from approaches to the asset (possibly **negative / minor**).
- Grade II Listed Wheal Honey stack, in terms of visual intrusion into views of the asset from the surrounding landscape. The chimney, itself a rare survivor of what was, in the past, a significant local focus of mining activity, is, at present, the only historic vertical component of the immediate landscape. Its visibility is therefore likely to be compromised by the turbine mast. The impact could therefore be **negative / moderate**.



- Grade II Listed Roseland House: there is a **negative / unknown** potential for an impact on setting from noise and vibration because of proximity to the turbine; if realised the impact would potentially be **negative / moderate**.

**Negative / minor** impacts on setting are probable for the following heritage assets:

- Padderbury hillfort (Scheduled Monument)
- Blacketon hillfort (Scheduled Monument)
- Catchfrench Registered Park and Garden
- Church of St Hugh of Lincoln, Quethiock (Grade I) (possibly **neutral**)
- Pengover (Grade II\*)
- Polgover (Grade II\*)
- Church of St Keyne (Grade II\*) (possibly **neutral**)
- Sunday School, Menheniot (Grade II)
- Tencreek (Grade II)
- Tencreek Cottages (Grade II)
- The Old Toll House (Grade II)
- Undesignated mining remains in the surrounding area.

Impact on other designations and heritage assets are judged likely to be **neutral**.

### 13.2.3 Impacts on Historic Landscape Character

A wind turbine at Tregrill can be predicted to have some degree of impact on the historic character of the landscape. The expected effect on HLC will be **negative / moderate**. Factors contributing to this assessment are as follows;

- Because of its location on a ridge the proposed turbine would be highly visible within the surrounding landscape. The character of that landscape, predominantly Farmland: Medieval (Anciently Enclosed Land), derives from the sinuous lines of field systems derived from enclosure of medieval cultivation strips, often with vegetated boundaries and patches of woodland on steeper slopes. Structures within this landscape, other than churches, are predominantly small, low-lying and horizontal, constructed of traditional materials, and static; the stack on Wheal Honey is an exception but is in scale with the remainder of its setting and a testimony to the rural character of the historic mining industry in this part of Cornwall. The vertical nature of a wind turbine, its starkness of design, modern materials and the constant movement of the turbine blades would represent a significant intrusion on the key elements of the historic landscape character of this area.
- There would be relatively limited impacts in terms of physical loss during the construction phase of the upstanding boundaries which form the visible components of HLC.
- Visual impact would occur throughout the operational phase, affecting the integrity of this area as historic farmland, because of the introduction of modern features into this area. Visual impacts on the landscape will be to some extent diminished by topography and distance from the site but the movement of the turbine blades will effectively increase the range over which it will have an impact on historic landscape character.
- Impacts on the legibility of HLC would be **temporary** and **reversible** should the turbine – if erected - be removed in the future.

#### **13.2.4 Archaeological impacts**

Works involving ground disturbance – erection of the turbine base and access track - could encounter significant buried prehistoric or medieval remains, resulting in permanent, irreversible loss of these, or elements of them. This potential impact is assessed as **negative/unknown** because specific evidence for the nature and extent of any such remains is limited. It is likely that this impact could be mitigated satisfactorily though geophysical survey and a site visit, the location of the proposed turbine being amended should significant archaeological remains be identified on the site through these means. Archaeological recording of potentially affected features, if undertaken prior to or during construction, would alter the residual impact to **negative/minor** because although there would be an irreversible loss of the archaeological resource, it would have been appropriately investigated and recorded. These impacts would be **permanent** and **irreversible**.

### **14 Recommendations**

Further archaeological investigation, including geophysical survey, would help to clarify archaeological potential of the area proposed for the wind turbine.

## 15 References

### Primary sources

- Ordnance Survey, c 1880. 1st edition 25in: 1 mile map (licenced digital copy at HE)
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- British Geological Survey 2012. Digital Geological Map of Great Britain 1:625 000 scale (DiGMapGB-625 data, Dataset Reference Date: 2012-04-18), with the permission of the British Geological Survey (Cornwall Council licenced digital GIS layer)
- Cranfield University 2004. National soils map, 1:250,000 (Cornwall Council licenced digital GIS layer)

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- Thorn, C, and Thorn, F, 1979. *Domesday Book: Cornwall*, Chichester (Phillimore)

### Websites

- Heritage Gateway: [www.heritagegateway.org.uk/gateway/](http://www.heritagegateway.org.uk/gateway/) (English Heritage's online database of Sites and Monuments Records, and Listed Buildings)
- English Heritage, Listed Buildings: [www.english-heritage.org.uk/caring/listing/listed-buildings/](http://www.english-heritage.org.uk/caring/listing/listed-buildings/)

## **16 Project archive**

The HE project number is **146249**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Digital photographs stored in the directory L:\Historic Environment (Data)\HE\_Projects\Viewsheds\Tregrill\Tregrill VS\_220413\Viewshed3\Tregrill Survey Images
3. English Heritage/ADS OASIS online reference: cornwall2-149656

This report text is held in digital form as: G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites T\Tregrill wind turbine assessment\final report\Tregrill wind turbine assessment 146249.doc



Fig 3 Joel Gascoyne's Map of the county of Cornwall newly surveyed, 1699



Fig 4 Thomas Martyn's New and accurate map of the county of Cornwall (1748)



Fig 5 Ordnance Survey Surveyors' Drawings, 1803, with approximate location of the proposed wind turbine (British Library online: © British Library)



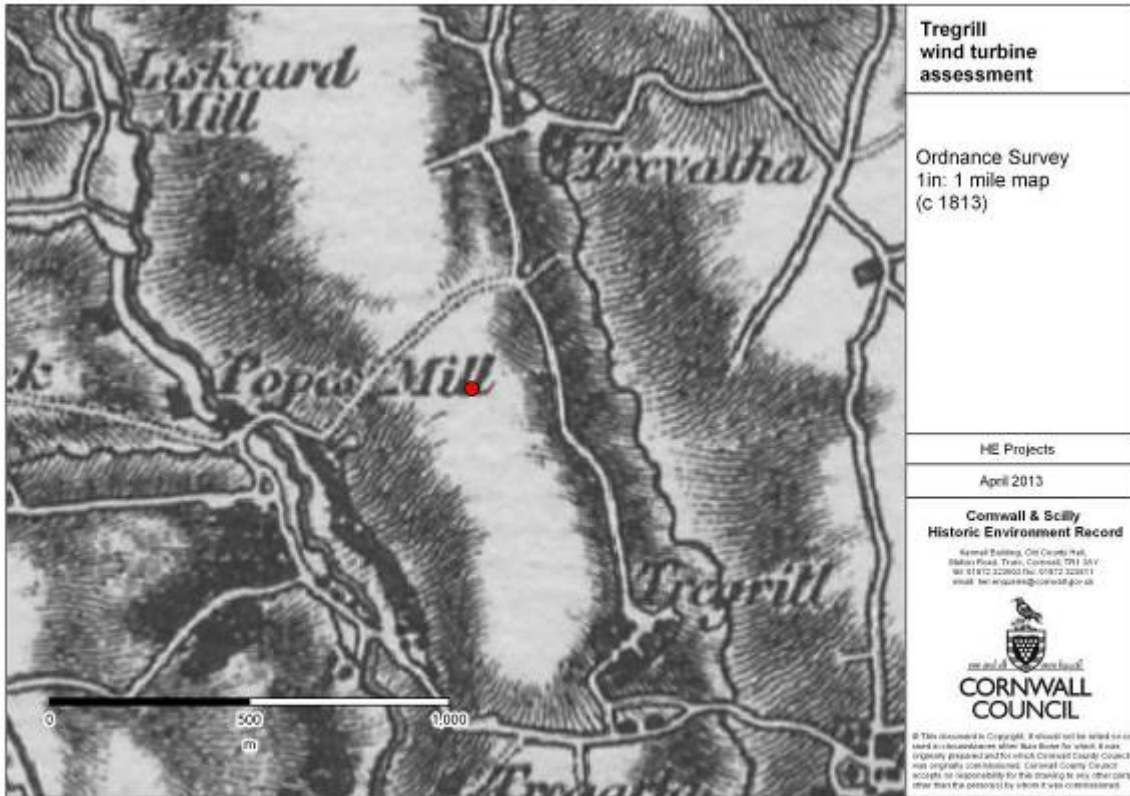


Fig 6 1st edition Ordnance Survey 1in: 1 mile map, c 1813

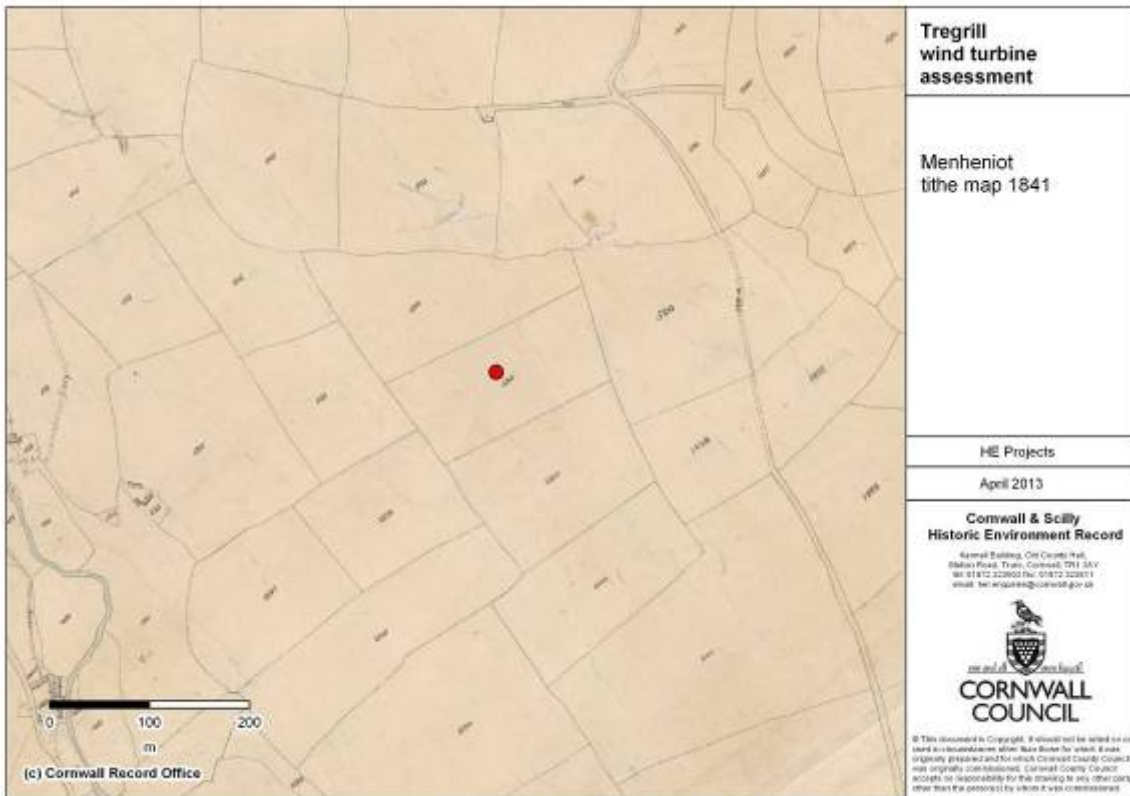


Fig 7 Menheniot tithe map, 1841

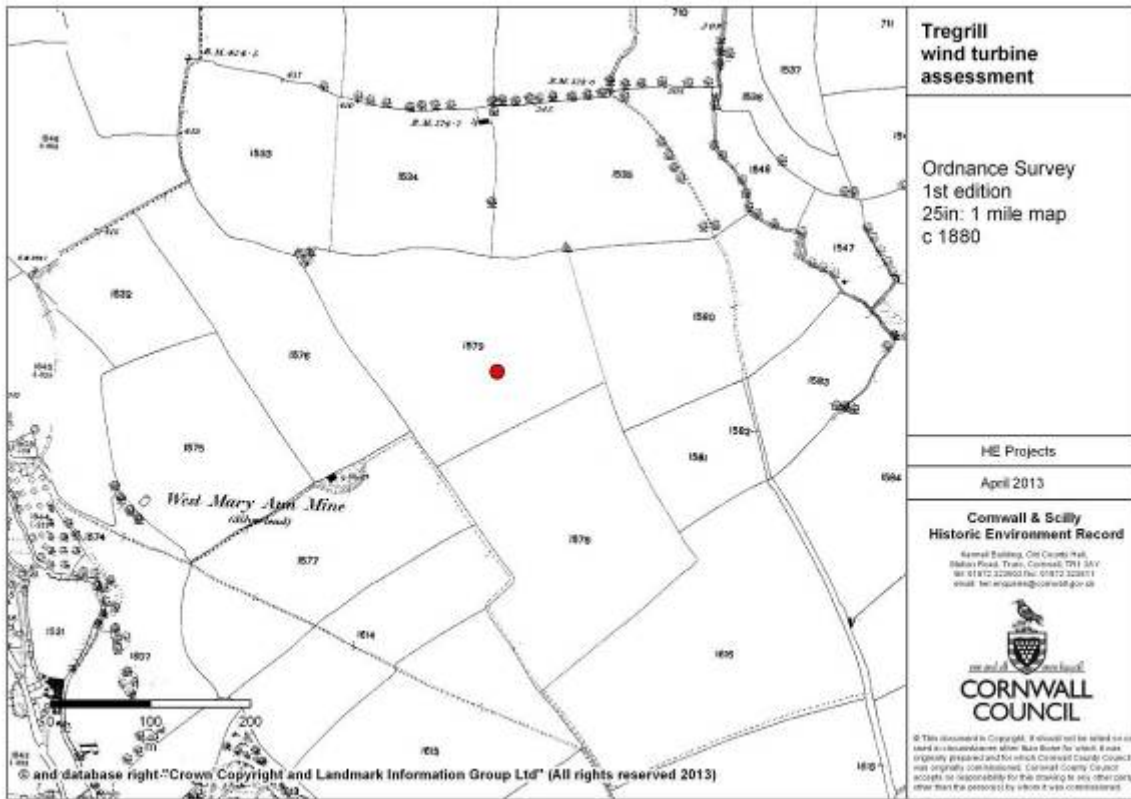


Fig 8 Ordnance Survey 1st edition 25in: 1 mile map, c 1880

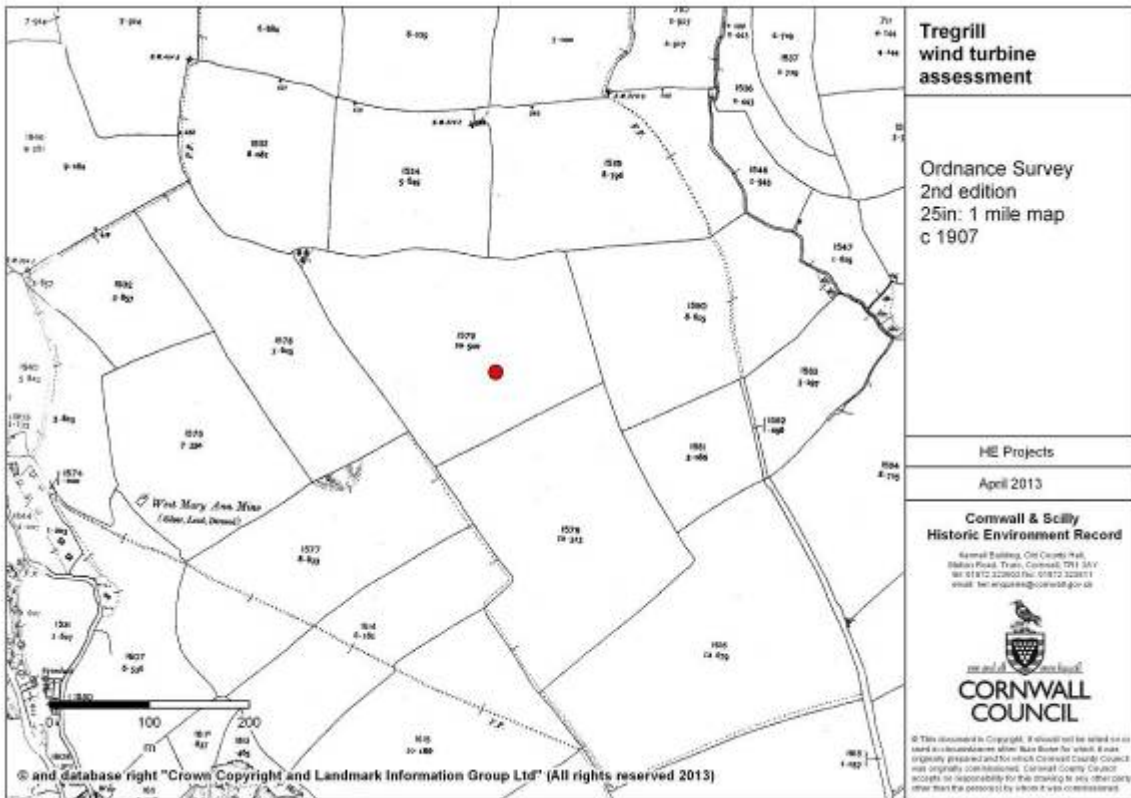


Fig 9 Ordnance Survey 2nd edition 25in: 1 mile map, c 1907



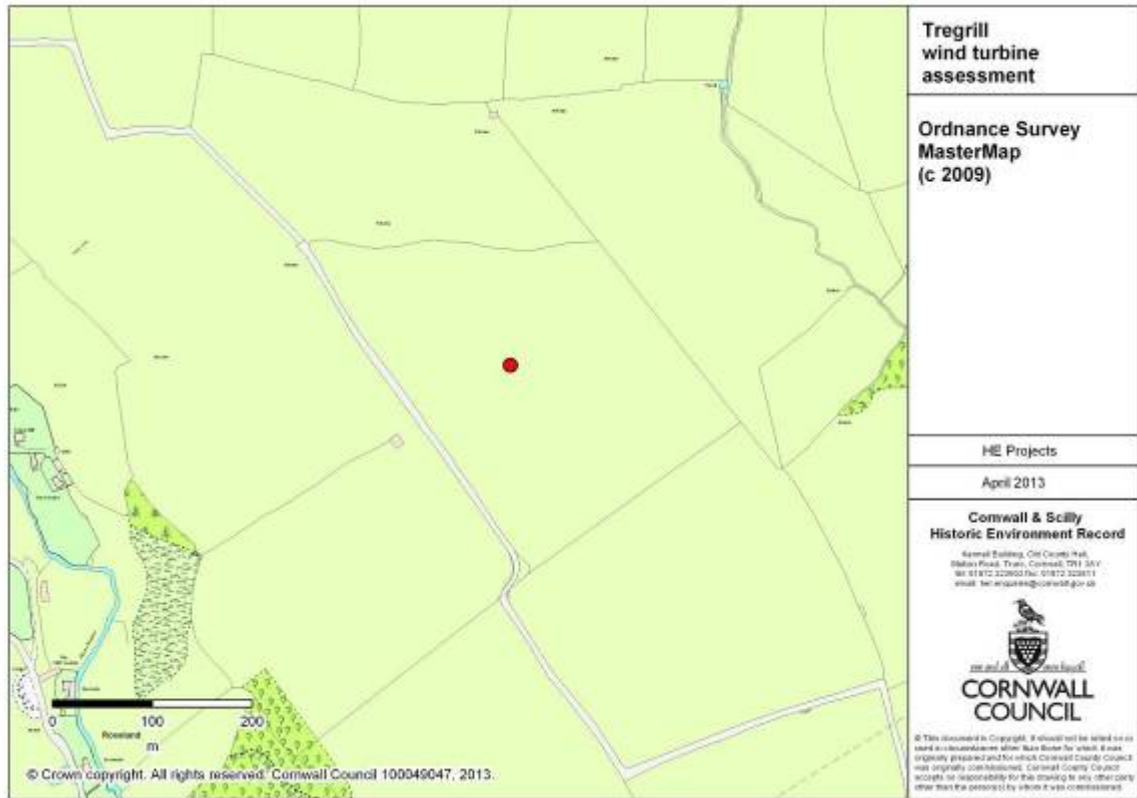


Fig 10 Current Ordnance Survey digital mapping (MasterMap), c 2009



Fig 11 Vertical air photograph of the site and environs, 2005.

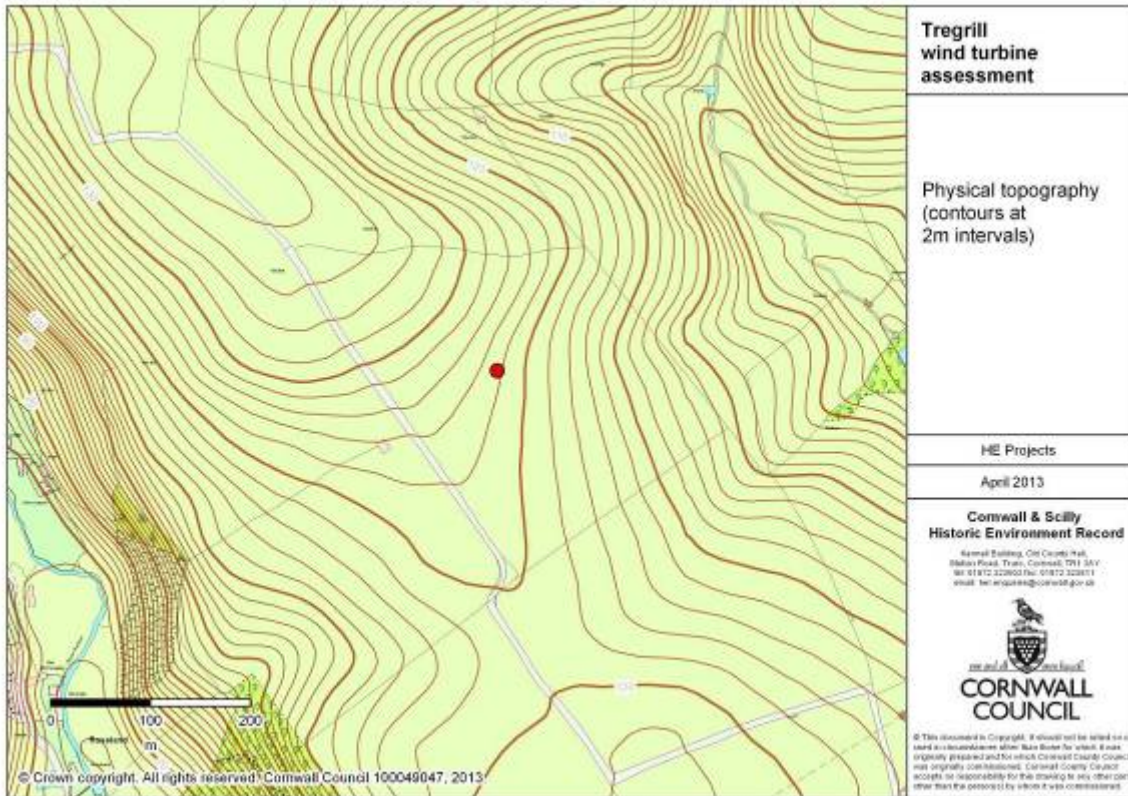


Fig 12 Physical topography of the site and environs (contours at 2m intervals).

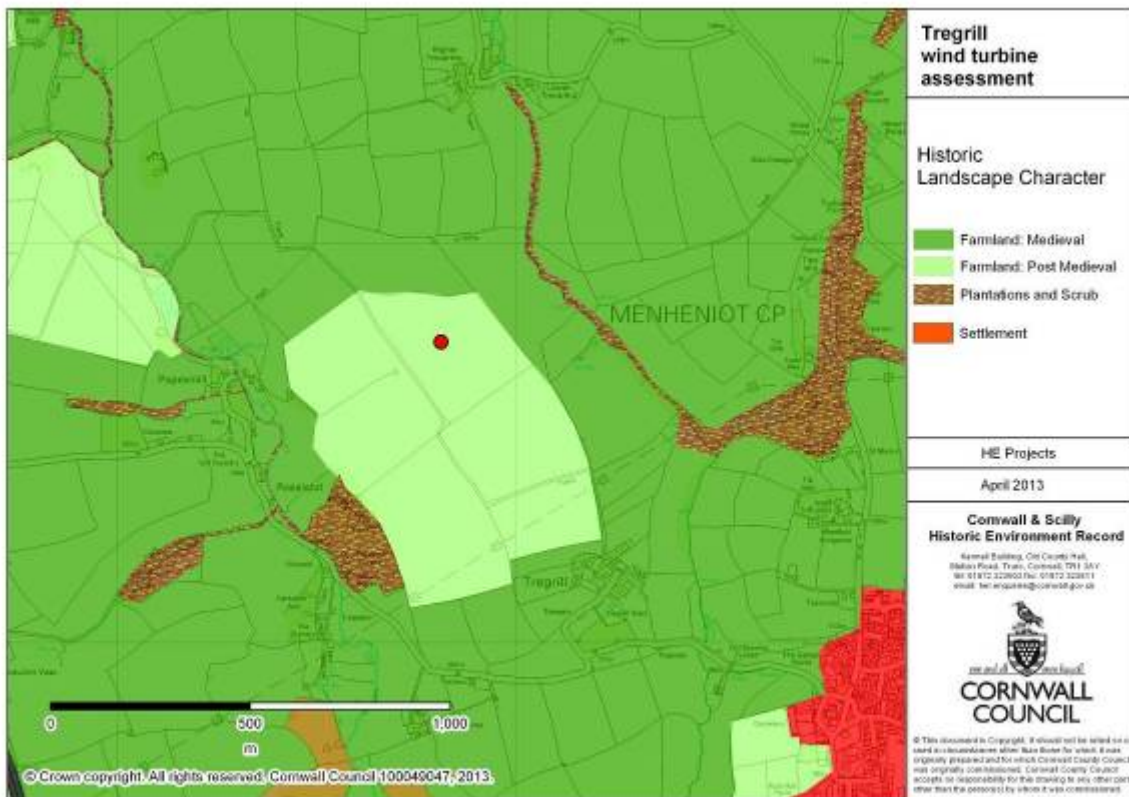


Fig 13 Historic Landscape Character mapping for the site and environs (Cornwall County Council 1996).



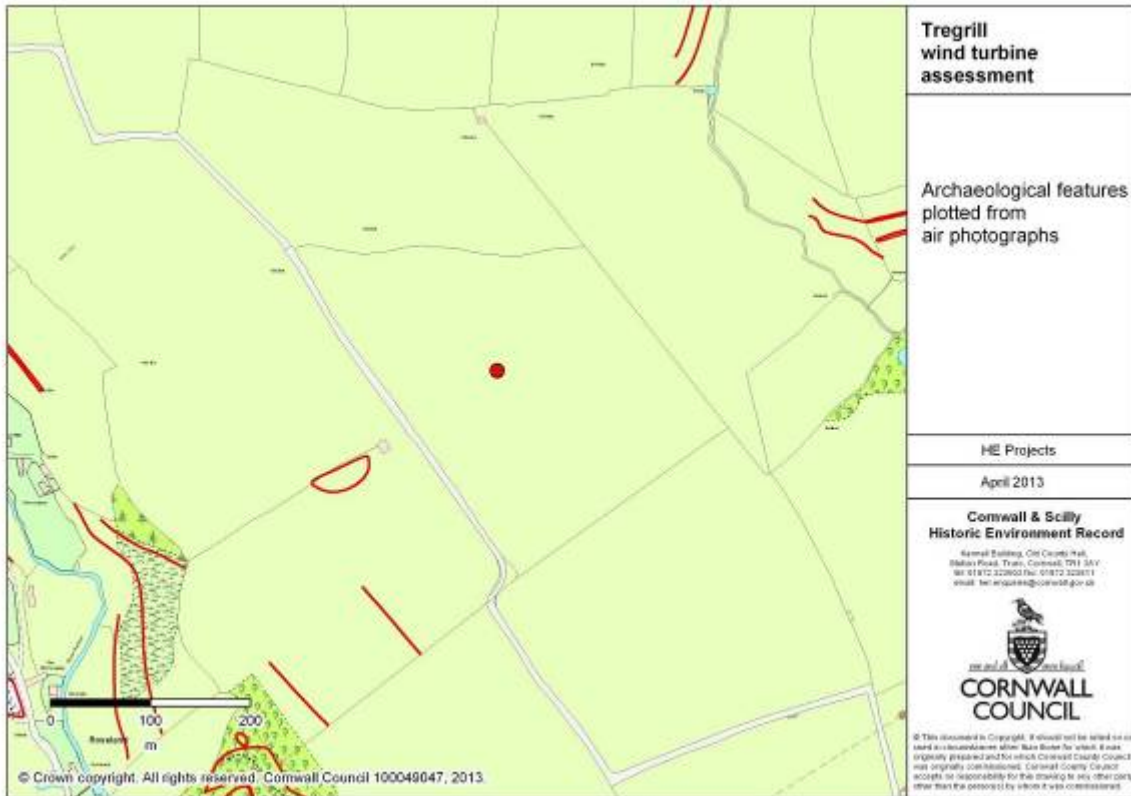


Fig 14 Archaeological features plotted from air photographs by the National Mapping Programme (NMP).

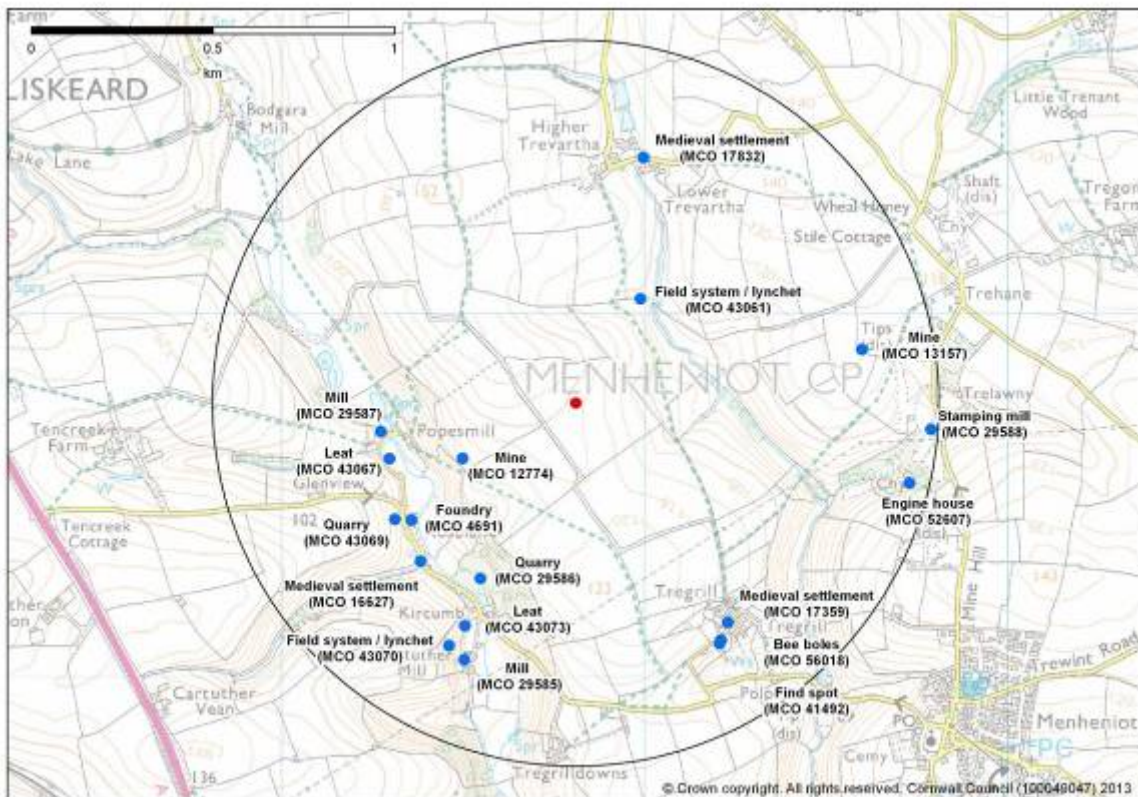


Fig 15 Features recorded by the Cornwall and Scilly Historic Environment Record falling within the 1 km ZTV of the proposed wind turbine site (ZTV not shown).



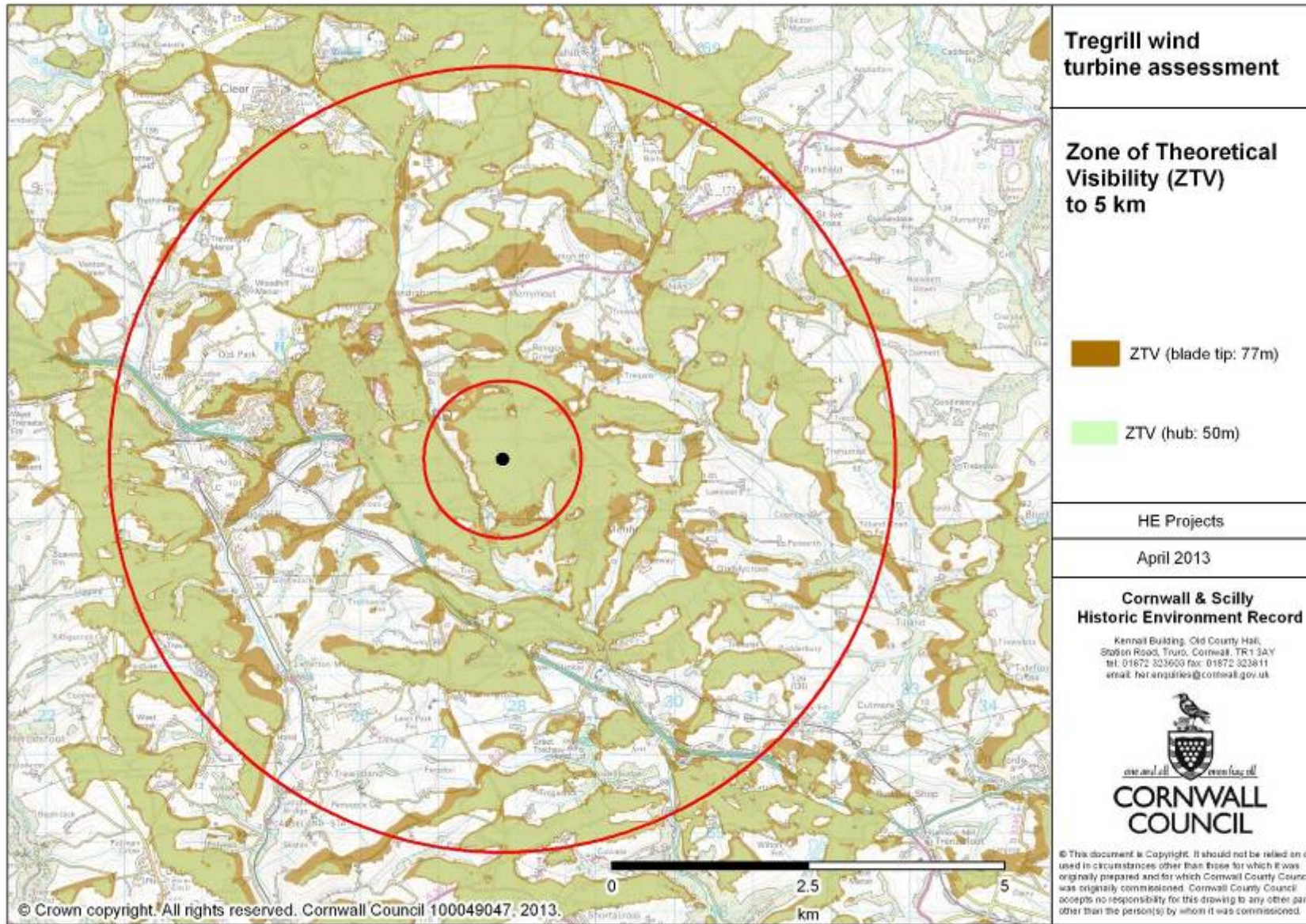


Fig 16 The 1 and 5 km Zones of Theoretical Visibility (ZTV) for the hub and blade tips of the proposed wind turbine.



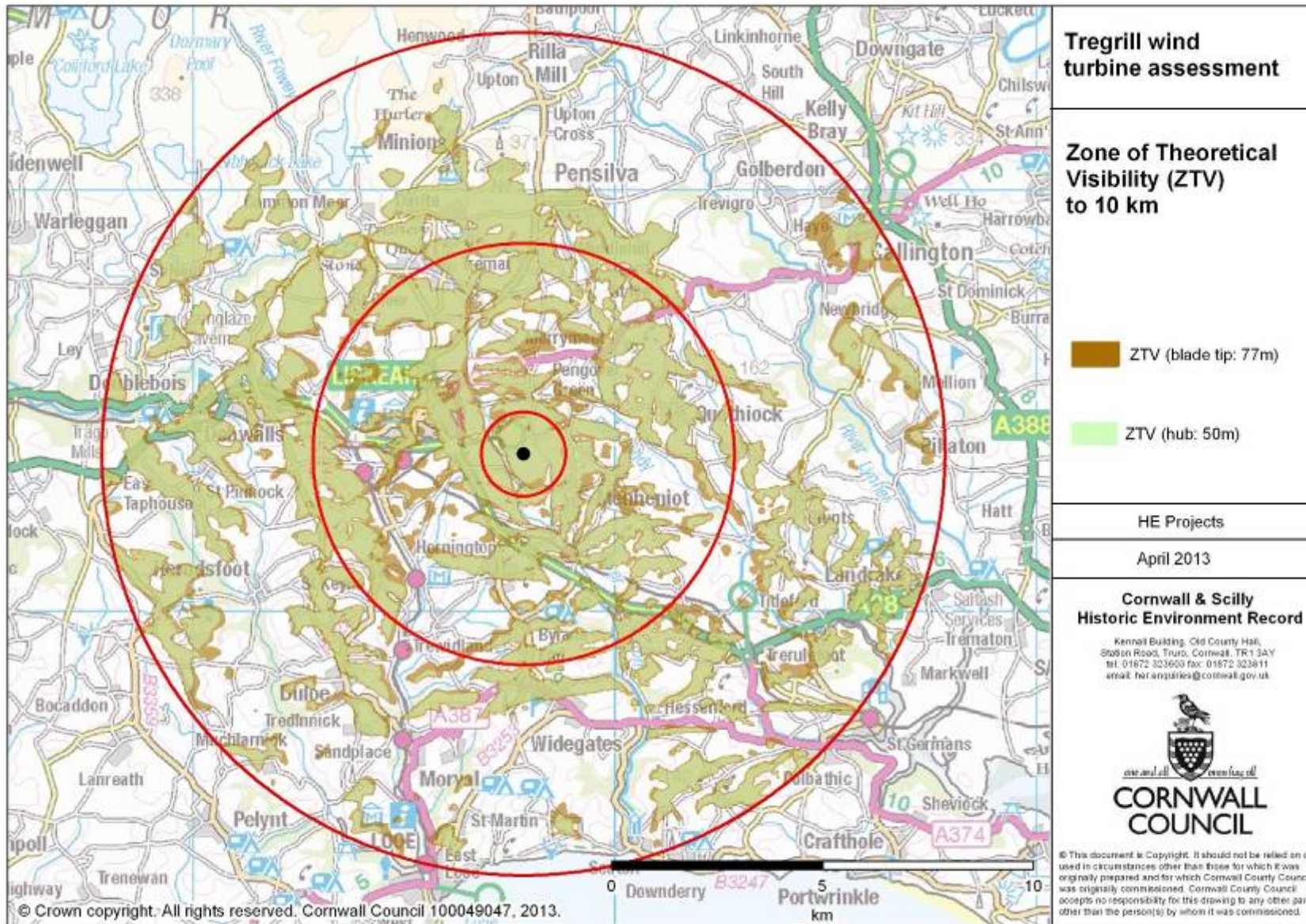


Fig 17 The 10 km Zones of Theoretical Visibility (ZTV) for the hub and blade tips of the proposed wind turbine.



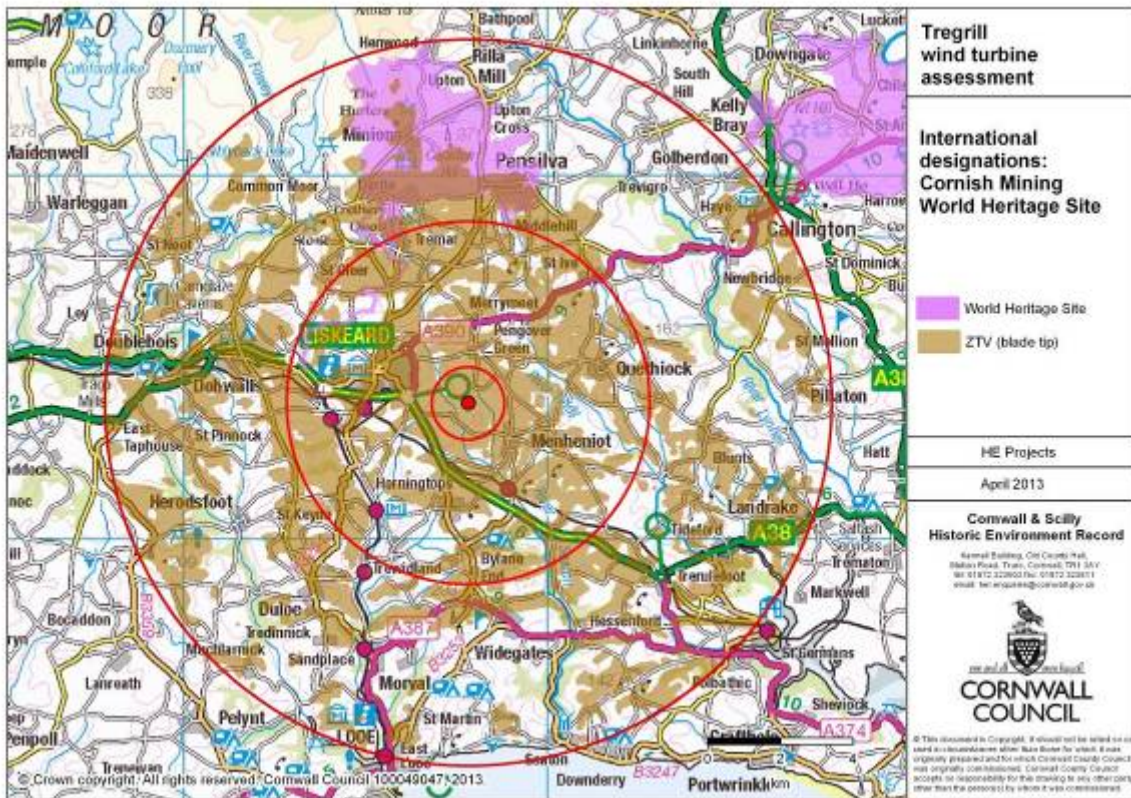


Fig 18 International designations: Cornish Mining World Heritage Site (10, 5 and 1 km radius circles and blade tip ZTV)

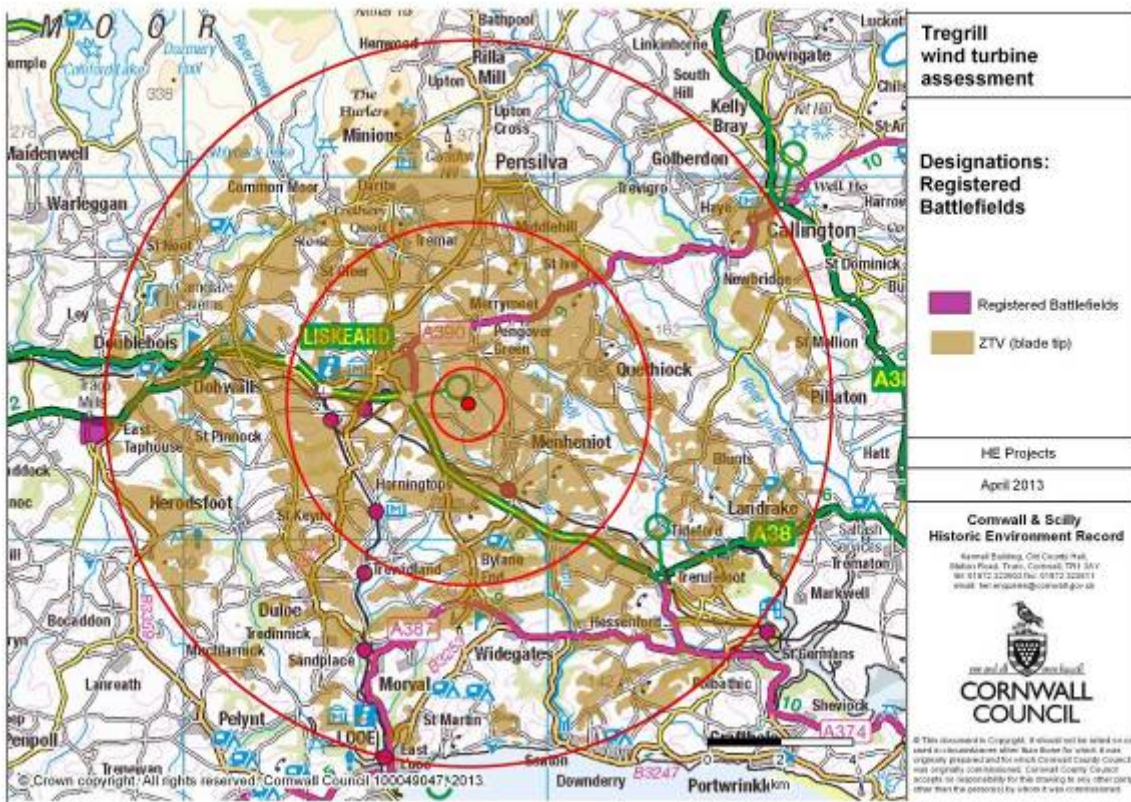


Fig 19 Designations: Registered Battlefields (10, 5 and 1 km radius circles and blade tip ZTV)



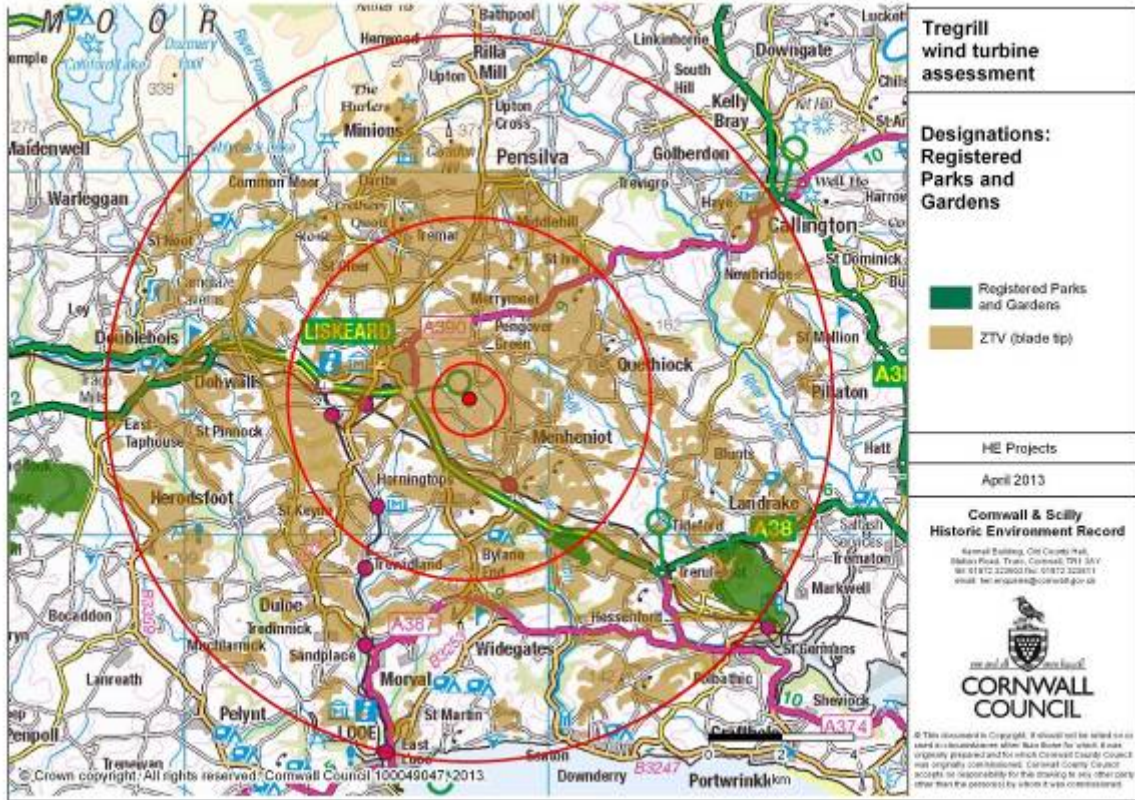


Fig 20 Designations: Registered Parks and Gardens (10, 5 and 1 km radius circles and blade tip ZTV)

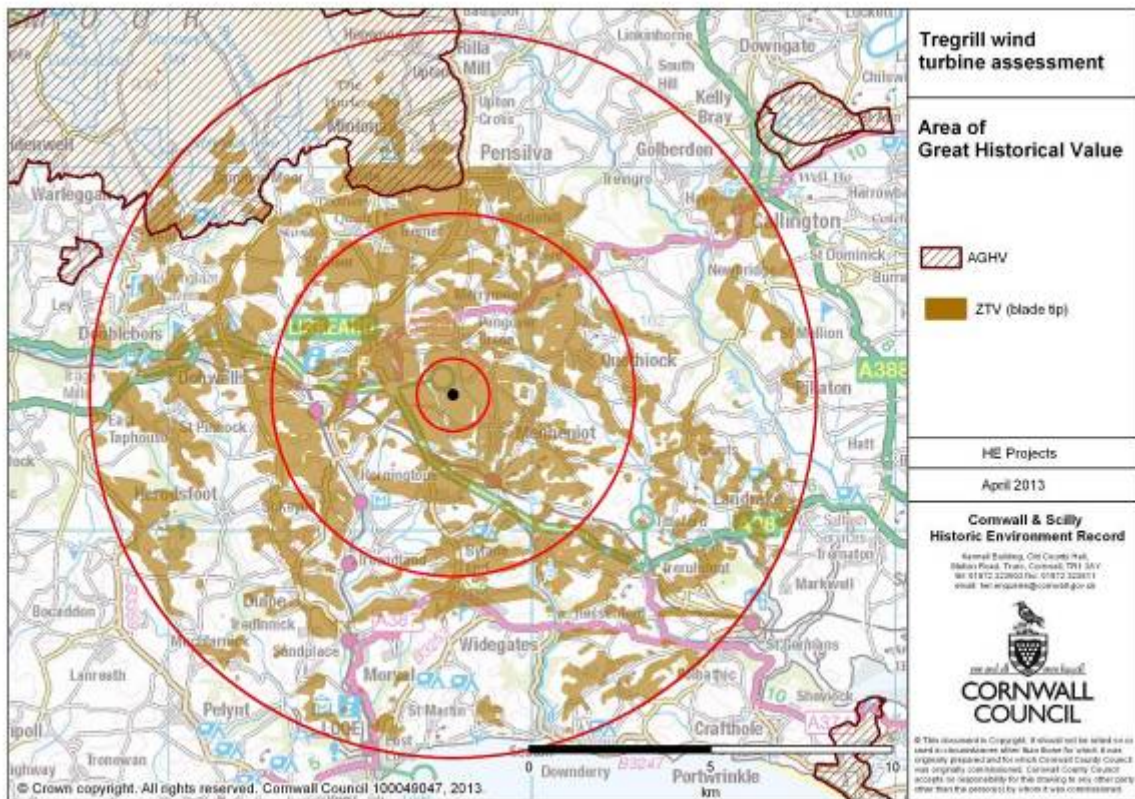


Fig 21 Designations: Area of Great Historical Value (AGHV)



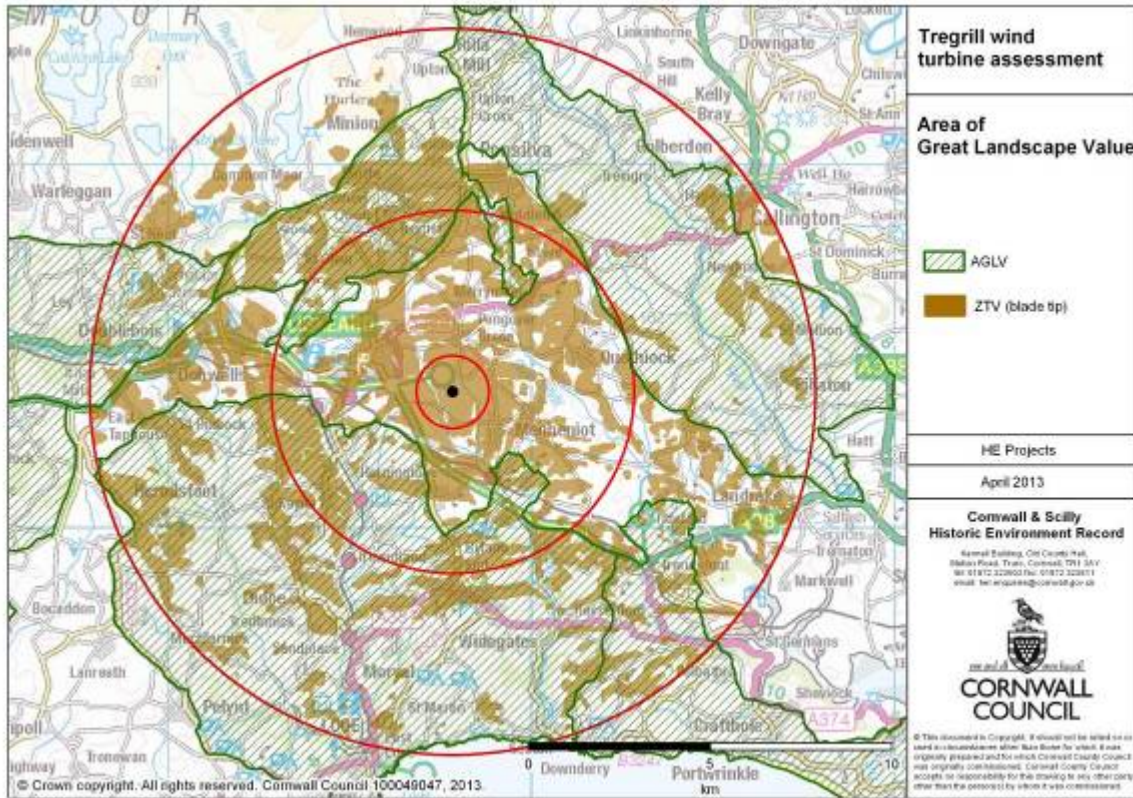


Fig 22 Designations: Area of Great Landscape Value (AGLV)

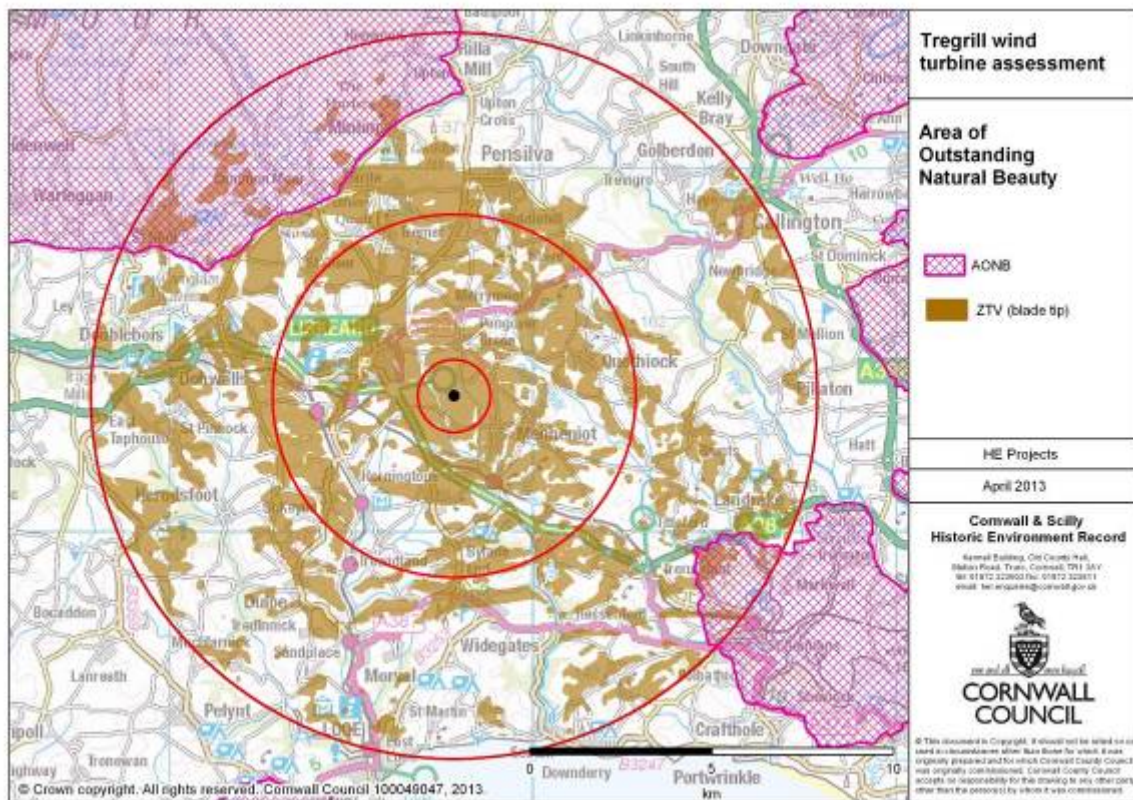


Fig 23 Designations: Area of Outstanding Natural Beauty (AONB)



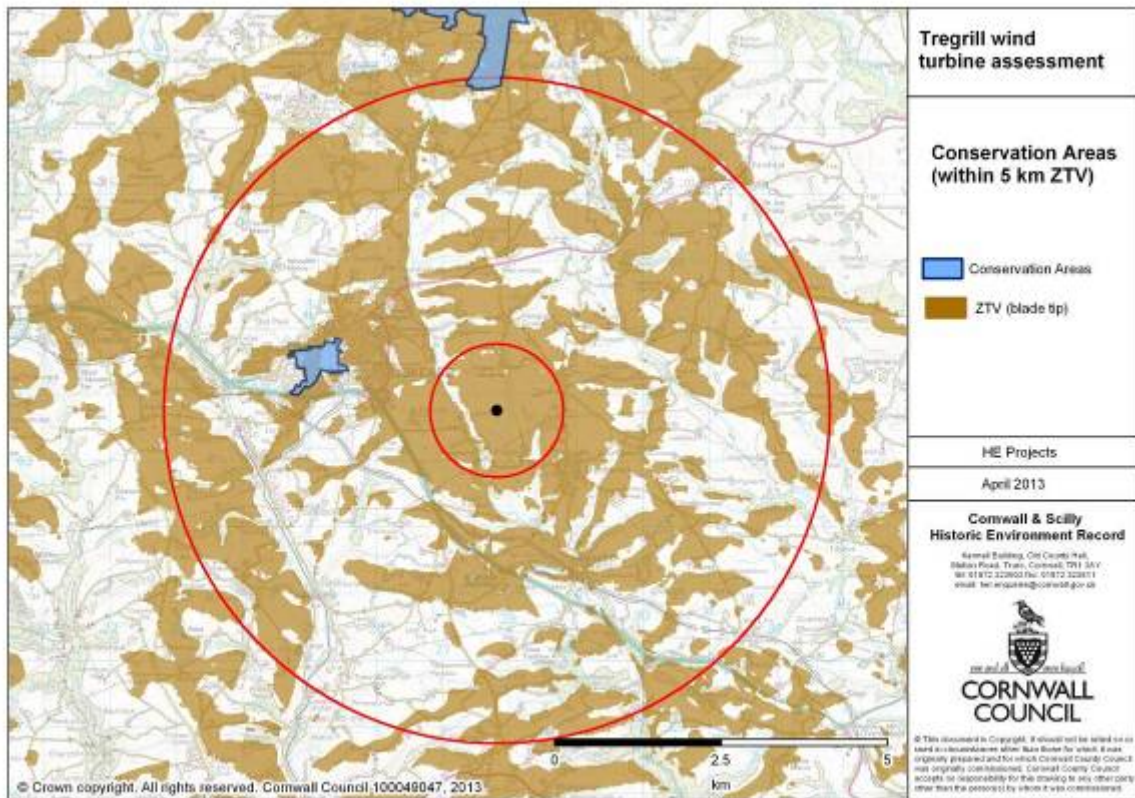


Fig 24 Designations: Conservation Areas

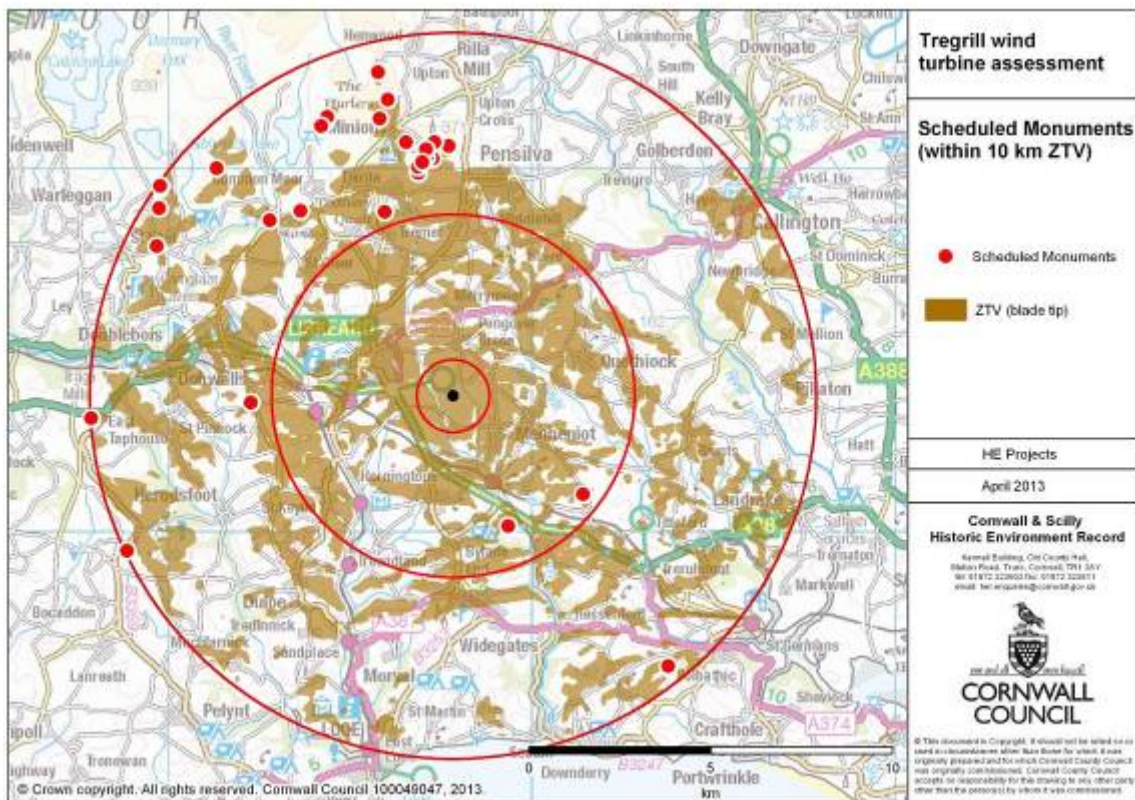


Fig 25 Designations: Scheduled Monuments within 10 km ZTV



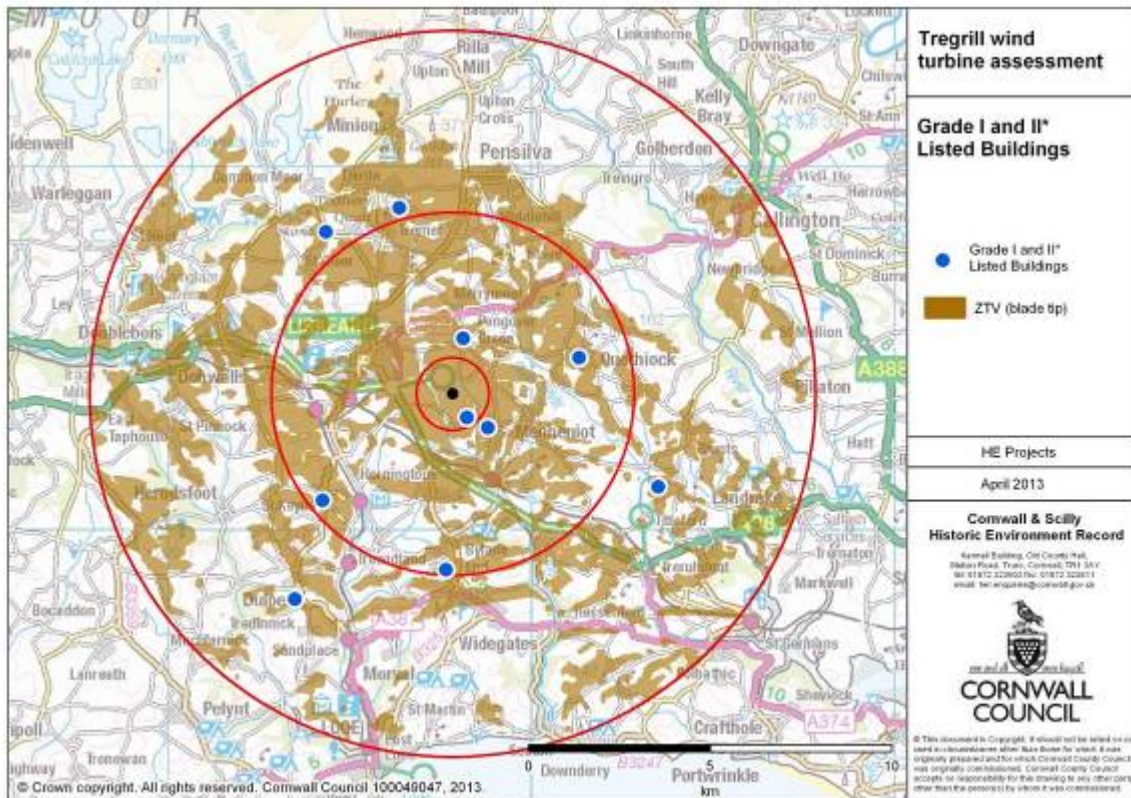


Fig 26 Designations: Grade I and II\* Listed Buildings within 10 km ZTV

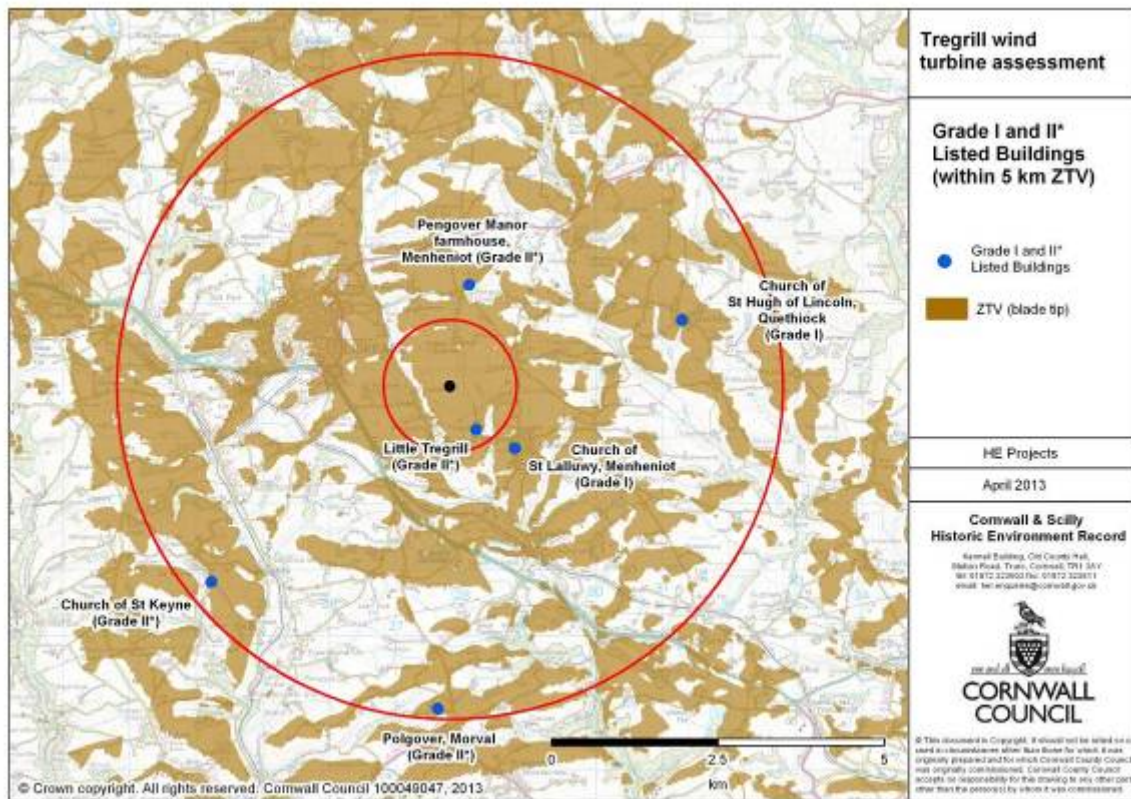


Fig 27 Designations: Grade I and II\* Listed Buildings within 5 km ZTV



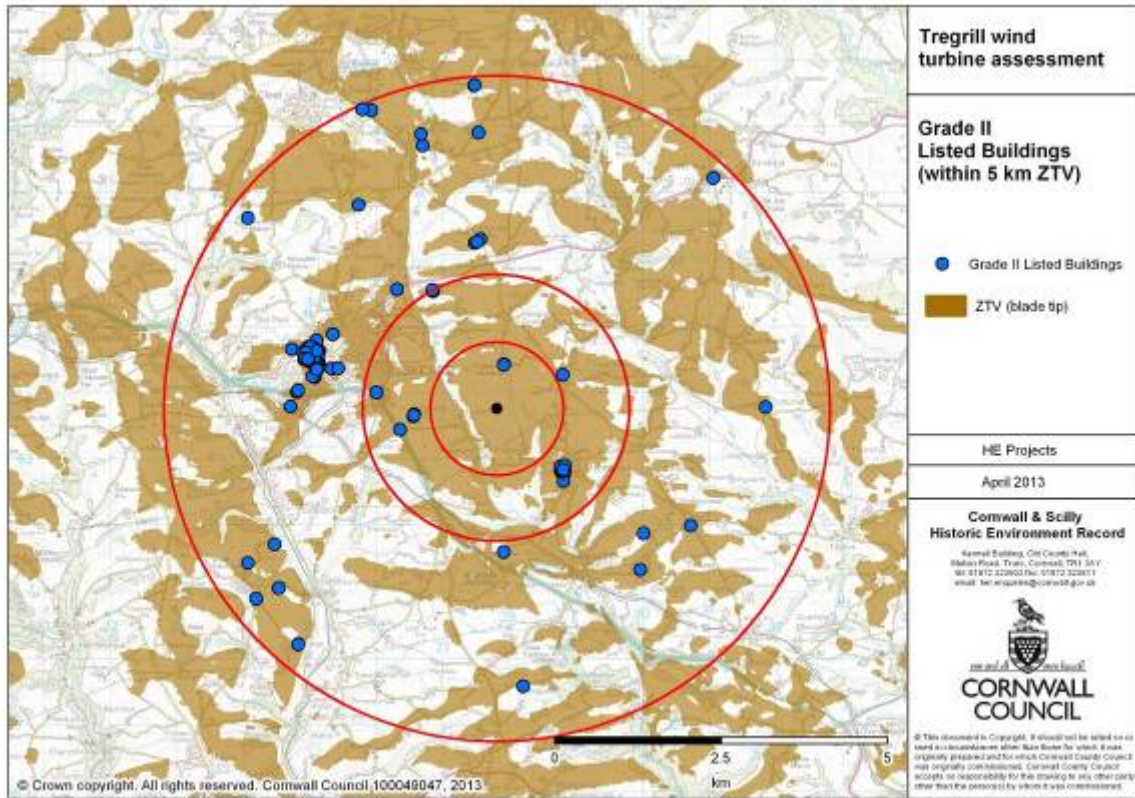


Fig 28 Designations: Grade II Listed Buildings within 5 km ZTV

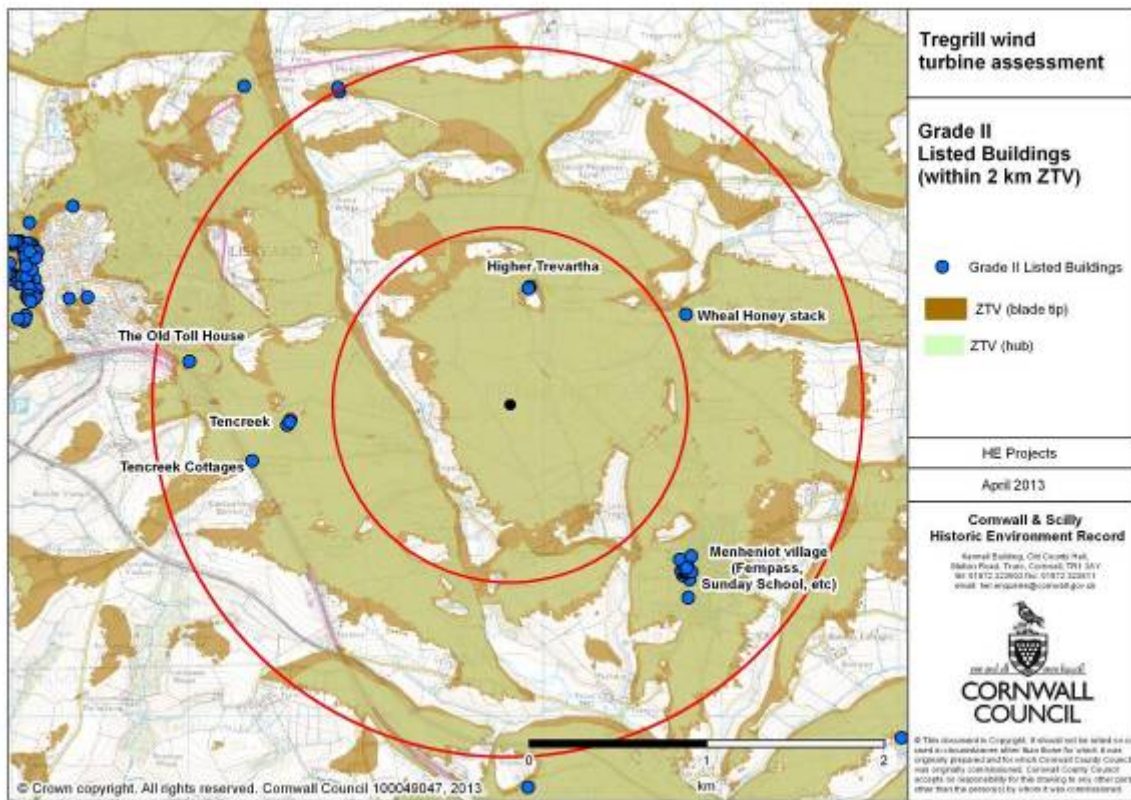


Fig 29 Designations: Grade II Listed Buildings within 2 km ZTV

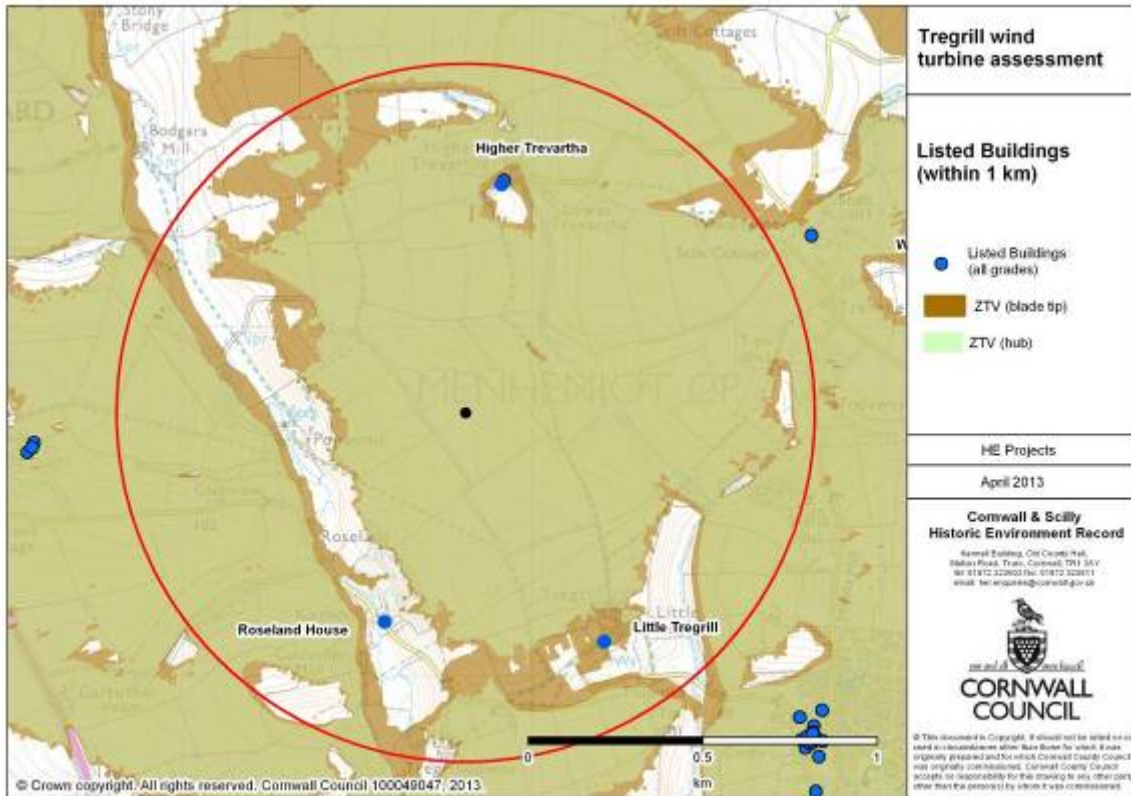


Fig 30 Designations: Listed Buildings within 1 km radius of the proposed development site



Fig 31 View east from public footpath 618/25/1 above Popesmill, approximately 375m north north west of the proposed turbine site. Wheal Honey stack lies in the centre of the photograph, Higher Trevartha solar farm to the left and a run of high voltage electricity pylons to the right. The proposed wind turbine would lie outside and to the right of the image.





*Fig 32 View south south east from public footpath 618/25/1 above Popesmill, approximately 375m north north west of the proposed turbine site. The Scheduled Monument of Blacketon hillfort lies in the centre of the image. The proposed turbine would be located to the left of the image.*



*Fig 33 View north west from the Scheduled Padderbury hillfort. Menheniot church spire is visible to the left. The proposed turbine site lies close to the Higher Trevartha solar farm, visible in the middle distance in the centre of the image.*



*Fig 34 View north west from the north west elevation of the Grade II Listed Catchfrench Manor, across the adjacent portion of the Registered Park and Garden. Direct views to the proposed turbine from the immediate area of the house appear to be limited, but are likely to occur from the parkland to the north west.*



*Fig 35 The view from public footpath 618/10/3, near Bodway, towards the proposed Tregill wind turbine site (centre of image), with Menheniot church spire to the left and the high-tension electricity pylons which cross the landscape to the south of Tregill.*



*Fig 36 View towards the proposed turbine site from a field gate adjacent to the Grade II Listed Tencreek Cottages, showing the open landscape and consequent probable visibility of the development from the approaches to the designated heritage asset with consequent potential impact on setting.*



## Appendix 1: Written Scheme of Investigation

Treggill, Menheniot: wind turbine assessment, Rev01, AS, 11/03/2013

### Historic Environment Projects, Cornwall Council



### Treggill, Menheniot, wind turbine: Written Scheme of Investigation for archaeological assessment

Client: Mr. and Mrs. W.D. Crocker  
Client contact: Richard Crocker  
Client tel: 01579 308234  
Client email: richard@lantoom.co.uk

### Project background

Historic Environment Projects were contacted in early March 2013 by Richard Crocker on behalf of Mr. and Mrs. W.D. Crocker of Liskeard, Cornwall with a request for the costs of an assessment of the potential impacts of the construction of a 67m to blade tip wind turbine proposed by Syzygy Renewables for a site at Treggill just to the south east of Liskeard and to the north west of Menheniot.

English Heritage have summarised the considerations which should be taken into account when assessing the archaeological impacts of renewables proposals, including indirect impacts on designated sites, areas and the surrounding landscape. English Heritage has indicated that such impact assessments should also include an assessment of the potential for buried archaeology, effects on landscape amenity and cumulative impacts. A guidance table indicating recommended ZTV distances in the cases of wind turbines of varying heights was included in this guidance. Direct and indirect impacts on Scheduled Monuments and Grade 1 and II\* Listed Buildings would need to be considered out to 10Km together with designated landscapes (Registered Parks and Gardens and Registered Battlefields). Impacts on Grade II Listed Buildings and Conservation Areas would need to be assessed out to 5Km radius of the site.

A standard brief guiding such assessments states:

*An assessment of the archaeological potential of the site and the potential impacts of the development on surrounding historic assets will be required to provide information in support of a planning application for the proposed development in accordance with the requirements of National Planning Policy Framework paragraph 128.*

*Cornwall Council Historic Environment Service believes high quality design should play a key role in minimising any adverse effects of renewable energy projects, whether this is directed at the disposition of wind turbines and energy crops in the landscape or the positioning of photo-voltaic cells on historic buildings or within the countryside. Fundamental to achieving high quality design will be a sound understanding of the character and importance of the historic asset involved, whether at the scale of individual buildings and sites or more extensive historic areas and landscapes.*

### Site history

The site is located in a rural area of east Cornwall at OS Grid Reference SX 27840 63627 to the south east of Liskeard. The wind turbine is to be sited at a height of 120m OD on soils recorded as being Denbigh 1 loams over shale, the underlying bedrock being Upper



Devonian mudstones and slatestones. The site occupies the south eastern end of a south south east trending ridge of land running towards the route of the A38 near Menheniot.

The area immediately surrounding the site proposed for the turbine is recorded as Recently Enclosed Land (Farmland post Medieval), this area of upland being set within a larger landscape of Anciently Enclosed Land (Farmland Medieval). As such it has the potential to contain evidence for prehistoric sites typical of upland areas, these including barrows, either singly or in groups.

Scheduled Monuments within 5km of the proposed site include Padderbury Hillfort (National Monument Number 1007297) 4.3km to the south east, Blacketon Hillfort (1007256) 3.7km to the south south east, Quethiock Church Cross (1014549) 3.6km to the east north east, a cross in Liskeard (1003046) 2.1km to the west north west and Culverland Cross in Liskeard (1014022) 2.5km to the west north west.

Many of the farmhouses within the surrounding landscape are Grade II Listed Buildings, as are some wayside crosses and bridges. The Church of St. Lalluwly at Menheniot (1329431) 1.25km to the south east is Listed Grade I, as is the Church of St. Hugh of Lincoln at Quethiock (1140035) 3.6km to the north east. Grade II\* Listed Buildings within 5km of the site include Little Tregrill (1312676) 650m to the south east, the Churchyard Cross at Quethiock (1140035), Stuart House in Liskeard (1203150), the Church of St. Ivo at St. Ive (1140830) 4.7 km to the north east, St. Keyne Church (1140840) 5.6km to the south west and Liskeard church (1206300) 2.5km to the north north west. The Church of St. Clarus at St. Cleer (1140474) just over 5km to the north west is Listed Grade I.

Liskeard 2.3km to the north west is a Conservation Area, as is Minions 8km to the north west, whilst Catchfrench (1001314) 4.3km to the south east is a grade II Registered Park and Garden. The south eastern fringes of Bodmin Moor (AONB) with its many Scheduled Monuments (for example on and surrounding Caradon Hill) is just under 8km to the north west. Much of the moorland is designated as an AGLV and an AGHV. The area around Caradon Hill is also a component of the Cornish Mining World Heritage Site, an international designation. Its boundary is 5.3km from the proposed wind turbine. The 10km radius zone around the site proposed for the wind turbine will potentially raise issues of intervisibility with Scheduled Monuments on south east Bodmin Moor on Caradon Hill and around Common Moor. The Grade I Registered Park and Garden at Port Eliot is just within this 10km zone.

Preliminary ZTV mapping undertaken by CEC Ltd for the client indicates that visibility of the wind turbine will occur within most of the landscape up to 2km of the site, including areas of Liskeard. At a 5km radius from the site, visibility of the wind turbine will be more patchy. This area includes Quethiock and Menheniot with their high grade Listed churches. Beyond 5km the viewshed will extend onto parts of south east Bodmin Moor.

The National Mapping Programme has recorded cropmark evidence for a number of removed medieval boundaries within the immediate environs of the site, as well as evidence for post medieval quarrying and mining.

This is an area of Cornwall which is currently experiencing a number of applications for wind turbines and solar farms. In the immediate environs of the site there are applications currently under consideration for solar farms at Higher Trevartha Farm just to the north and Ten creek 1km to the west south west. A 66m to blade tip wind turbine has been approved at Trethawne 1.7km to the south west whilst other applications are currently being screened at Pencrowd Farm (45m to blade tip) 2km to the south south west and at 3.25km, 3.5km and 4km to the south south west near Fursdon Farm (67m, 66.7m and 66.7m to tip). Given the distances of these sites from that at Tregrill, it is unlikely that significant cumulation will occur.

## Project extent

The assessment will consider the surviving heritage assets within the area immediately surrounding the site proposed for the wind turbine. The viewshed analysis will model intervisibility with heritage assets within the landscape surrounding the site proposed for the wind turbine as set out in an English Heritage letter dated 1 July 2012.

The proposed archaeological assessment is, in part, focussed on those heritage assets (whether designated or not) which might be physically impacted upon by activities associated with the erection of the wind turbine, including any cable trenching, siting of temporary compounds, cranes or other equipment and with any associated semi-permanent infrastructure.

The assessment will also take into account and quantify impacts on the settings of heritage assets (both designated and undesignated) within the viewshed of the proposed turbine site in line with Policy HE6 in PPS5, sections 16(2) and 66(1) of the Planning (Listed Buildings and Conservations Areas) Act 1990 Chapter 9, and English Heritage guidance relating to the setting of historic assets (2011) and on wind energy and the historic environment (at a minimum):

- Non-designated heritage assets – 1 km radius.
- Scheduled Monuments, Grade 1 and Grade II\* Listed Buildings – 10km radius.
- Grade II Listed Buildings – 5km radius.
- Conservation Areas – 5km radius.
- Registered Parks and Gardens – 10km radius.
- World Heritage Site – 10km radius.

## Aims and objectives

The assessment needs to both a) assemble an evidence base to identify those historic assets which may be impacted by the proposed development and b) evaluate the significance of the assets affected and the significance of their settings and identify potential impacts on that significance either direct or indirect. This will involve a desk based assessment including a viewshed analysis to establish the Zone of Theoretical Visibility (ZTV) of the proposal site, the drawing together of information from Heritage Asset registers and other sources including historic maps, and a walk over survey of the extant remains of the site including the preparation of photographic montages of key views affected. This work should be capable of providing evidence for the assessment of impacts of the development and informing options for its design.

The site specific aims are to:

- Establish viewsheds of the proposal site.
- Draw together existing historical and archaeological information about the site and its landscape setting from published and unpublished sources and information on designated and undesignated assets from national and local Historic Asset registers (such as the CSHER, NMR, Heritage Gateway, etc).
- Review and analyse historic map evidence for the site.
- Produce 'statements of significance' for all designated historic assets, that are identified as potentially impacted on by the current proposals following the initial filtering of the ZTV. Where currently undesignated assets are identified their likely significance should be indicated i.e. 'national', 'regional' or 'local'.
- Inform whether further archaeological recording of the site might be required.

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- Identify the construction, use and 'end of life' impacts of the current proposals on designated heritage assets (as listed in the NPPF) and on undesignated historic assets as described in PPS5.
- Follow English Heritage Guidance 'The Setting of Heritage Assets' (2011) to produce assessments of the significance of setting of affected assets and the impacts of the proposals on those settings.

The principal project objective is to produce an illustrated report setting out the range of potential impacts of the proposal, the relative significances of the potentially affected sites and suggestions for suitable mitigation measures.

A further objective is to produce an entry to the OASIS on-line index to archaeological projects.

## Working methods

All recording work will be undertaken according to the Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording*. Staff will follow the *IfA Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology*. The Institute for Archaeologists is the professional body for archaeologists working in the UK.

### Desk-based assessment

A desk-based assessment will be carried out to inform the fieldwork stage. This will comprise:

- Relevant published sources
- Historic maps, including:
  - Joel Gascoyne's map of Cornwall (1699)
  - Thomas Martyn's map of Cornwall (1748),
  - OS 1 inch survey (c1810)
  - Menheniot Tithe map (c1840),
  - 1<sup>st</sup> and 2<sup>nd</sup> Editions of the OS 25 inch maps (c1880 and c1907)
- Modern maps
- GIS layers curated by Cornwall Council and the Historic Environment, Cornwall Council

### Assessment of impacts on setting of heritage assets

Heritage assets intervisible with the sites of the proposed turbine will be identified through the creation of a viewshed using GIS software. The methodology employs a Digital Terrain Model (DTM), or 'bare earth' given that features like woodland which may currently obscure views are not permanent features of the landscape. A viewshed will be generated for an 'observer point' based on the location of the proposed turbine.

When performing a viewshed analysis, several variables will be used to limit or adjust the calculation including offset values, limitations on horizontal and vertical viewing angles (azimuth) and distance parameters (radius) for the observer point. The viewshed will be based on an 'observer elevation value' made up of the 'elevation value' or height above sea level of the ground at the observer viewpoint, with added to this additional offsets of 50m and 67m to represent the height of the hub and the tips of the rotor blades.

These viewsheds will be checked on the ground from key sites, whilst significant heritage assets within the theoretical viewsheds will be visited to determine intervisibility with the



proposed development site, and hence the scale and type of any visual impacts which may affect their settings, as required by English Heritage (2011).

#### **Fieldwork: survey**

A walkover survey will be undertaken within the environs of the site proposed for the wind turbine at Treggill. Sites identified within the desk-based assessment will be field checked and their condition noted. Unrecorded sites identified during the walkover survey will be located using a hand-held GPS unit and will be added to a base map generated during the desk based assessment. Areas of archaeological sensitivity will be identified during the walk over survey.

Site visits will be made to publicly-accessible potentially intervisible key heritage assets within the area covered by the viewshed zones to truth-check this mapping and to determine the likely scale of impact on these heritage assets of the construction of the wind turbine.

#### **Fieldwork: photographic recording**

High resolution digital photographs will be taken from points close to the location of the proposed turbine to record the landscape visible from its site, together any heritage assets contained within it. Where practicable, images will also be taken from inter-visible heritage assets within the locality to determine the level of visual impact which might be expected from the proposed development. Images back towards the proposed site will be taken from significant heritage asset receptors using a 50mm focal length lens on a high resolution digital camera (the equivalent of a 75mm lens on 35mm film to indicate the likely degree of intervisibility between these heritage assets and the development site and the likely impacts on their settings).

The photo record will comprise:

- general views
- examples of archaeological detail

The methodology for the photography is set out as follows:

- Photographs of details will be taken with lenses of appropriate focal length
- A tripod will be used to take advantage of natural light and slower exposures
- Difficulties of back-lighting will be dealt with where necessary by balancing the lighting by the use of flash

#### **Creation of site archive**

This will include:

- Digital colour photographs stored according to HER guidelines
- Project materials stored according to HER guidelines
- Completion of an English Heritage/ADS OASIS online archive entry.

#### **Archive report**

The written report will include:

- A concise non-technical summary of the project results;
- The aims and methods adopted in the course of the investigation;
- A discussion of the archaeological findings setting out a brief background history to the project area, designations applying to it and heritage assets within its Zone of Theoretical Visibility (ZTV), a brief inventory of intervisible heritage assets and their significances, and the direct and other impacts on heritage assets which might result from the development;

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- Summary management recommendations based on the findings of the various survey components to inform whether any additional archaeological investigation might be required, or whether the turbine should be repositioned to avoid or reduce impacts on the settings of designated archaeological sites;
- A location map and a plan showing those areas examined as part of the archaeological recording. All plans will be tied to the national grid;
- A summary of the archive contents;
- References;
- A copy of the approved WSI will be included as an appendix;
- Supporting illustrations: location map, historic maps, viewshed mapping, photographs.

A paper copy and a digital (PDF) copy of the report, illustrations and any other files will be deposited with in the Cornwall HER, but will be closed to public access until material relating to the planning application is within the public domain. Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres. These will also be held back from public access until the planning application for the proposed turbine has been submitted and the information contained within the report will therefore be deemed to be within the public domain.

### **Archive deposition**

An index to the site archive will be created and the archive contents prepared for long term storage, in accordance with HE standards.

An ordered and integrated site archive will be prepared in accordance with Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006 upon completion of the project. As the project is likely to produce solely a documentary archive this will be deposited with the Cornwall Record Office as well as the Courtenay Library of the Royal Institution of Cornwall.

A summary of the contents of the archive shall be supplied to the HEPAO.

The archiving will comprise the following:

1. All correspondence relating to the project, the WSI, a single paper copy of the report together with an electronic copy on CD, stored in an archive standard (acid-free) documentation box.
2. The project archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at Cornwall Record Office.

## **Timetable**

The study is anticipated to be commenced during March 2013. HE Projects will require at least two weeks notice before commencement of work, in order to arrange field staff time and arrange other logistics.

The archive report will be completed within 3 months of the end of the fieldwork. The deposition of the archive will be completed within 3 months of the completion of the archive report.

## **Monitoring and Signing Off Condition**

Monitoring of the project will be carried out by Andy Jones, Historic Environment Projects Team Leader.

Monitoring points during the study will include:

- Approval of the WSI
- Completion of archive report
- Deposition of the archive

## Historic Environment Projects

Historic Environment Projects is the contracting arm of Historic Environment, Cornwall Council (HE). HE employs some 20 project staff with a broad range of expertise, undertaking around 100 projects each year.

HE is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing clients with a number of services including:

- Conservation works to sites and monuments
- Conservation surveys and management plans
- Historic landscape characterisation
- Town surveys for conservation and regeneration
- Historic building surveys and analysis
- Maritime and coastal zone assessments
- Air photo mapping
- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Outreach: exhibitions, publication, presentations

## Standards



HE is a Registered Organisation with the Institute for Archaeologists and follows their Standards and Code of Conduct.

As part of Cornwall Council, the HES has certification in BS9001 (Quality Management), BS14001 (Environmental Management), OHSAS18001 (Health, Safety and Welfare), Investors in People and Charter Mark.

## Terms and conditions

### Contract

HE Projects is part of Historic Environment, Cornwall Council. If accepted, the contract for this work will be between the client and Cornwall Council.

The views and recommendations expressed will be those of the HE projects team and will be presented in good faith on the basis of professional judgement and on information currently available.

### **Project staff**

The project will be managed by a nominated Senior Archaeologist (Adam Sharpe BA MIFA) who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officer, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.
- Liaise with the client regarding the budget and related issues.
- Provide background information to the geophysical survey contractor.

Work will be carried out by suitably qualified and experienced HE Projects staff.

### **Report distribution**

Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

A digital copy of the report, illustrations and any other files will be held in the Cornwall HER and also supplied to the client on CD or other suitable media.

### **Copyright**

Copyright of all material gathered as a result of the project will be reserved to the Historic Environment, Cornwall Council. Existing copyrights of external sources will be acknowledged where required.

Use of the material will be granted to the client.

### **Freedom of Information Act**

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

HE will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received HE may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

### **Health and safety statement**

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers and also the Council for British Archaeology's Handbook No. 6 *Safety in Archaeological Field Work* (1989).

Prior to carrying out on-site work HE will carry out a Risk Assessment.

### **Insurance**

As part of Cornwall Council, HE is covered by Public and Employers Liability Insurance.

*Adam Sharpe BA MIFA*

*Senior Archaeologist*

*11 March 2013*

*Historic Environment Projects, Kennall Building, Old County Hall, Station Road, Truro, Cornwall. TR1 3AY*

